OKI

OKIPAGE *8p Plus* LED Page Printer

Maintenance Manual

OEL

PREFACE

This Maintenance Manual describes the field maintenance methods for LED Page Printers.

This manual is written for use by service persons. Please note that you should refer to the Printer Handbook for the handling and operating methods of the equipment.

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1. CONFIGURATION

1.1 System Configuration

The OKIPAGE 8p Plus consists of a control block, a power supply unit, and an engine block. (See Figure 1-1.)

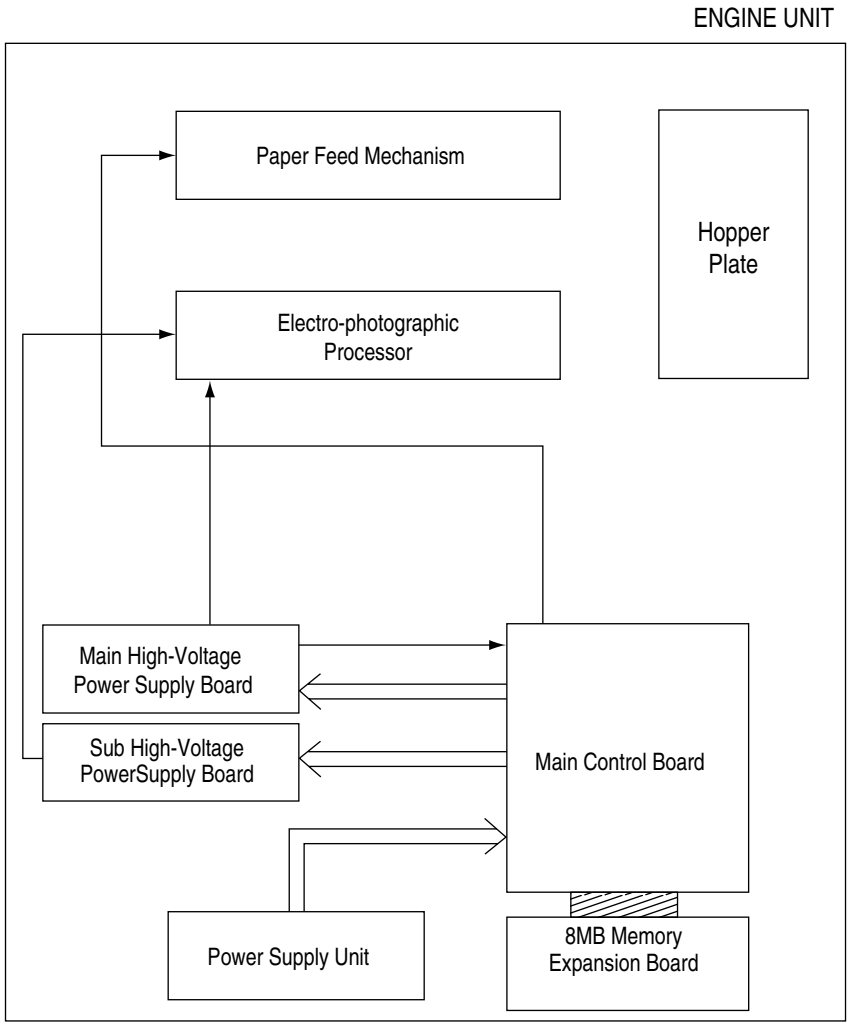


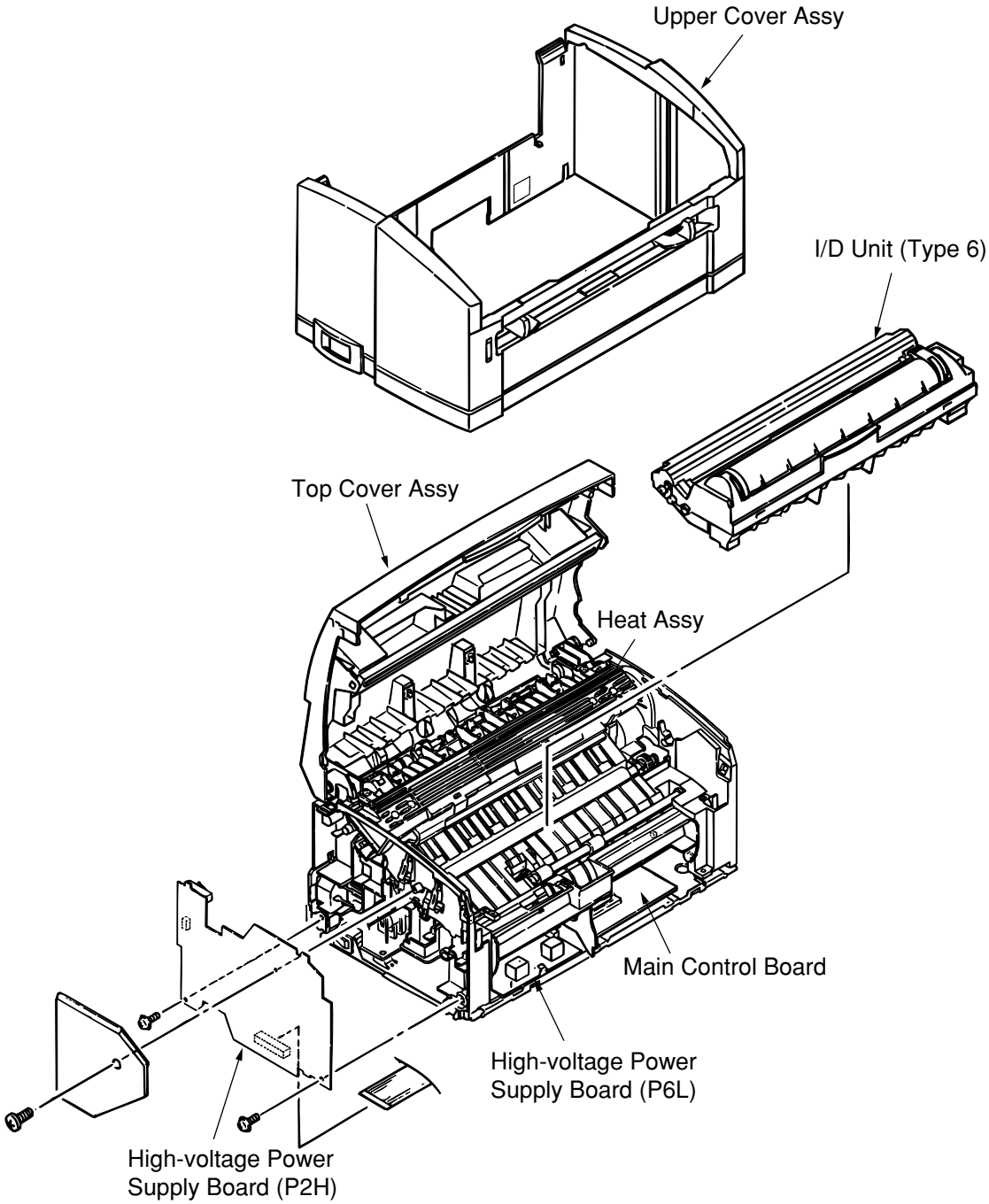
Figure 1-1

1.2 Printer Configuration

The printer unit consists of the following five hardware components:

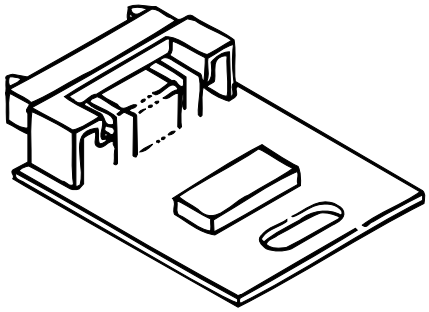
- Electro-Photographic Processor
- Paper Feeder
- Main Control Board
- High-Voltage Power Supply Board (two Boards)
- Power Supply Unit

Figure 1-2 is the configuration of the printer unit.



1.3 Option

(1) 8MB N8A-PCB Option Memory Board



1.4 Specification

(1) Type	Desktop	
(2) Outside dimensions (excludes protruding portion)	Height 6.7” (170 mm) Width 12.8” (324 mm) Depth 8.1” (207 mm)	
(3) Weight	4.3 kg	
(4) Development method	Dry non-magnetic development system	
Exposure method	LED stationary head	
(5) Paper used	<Type> • Standard paper – Xerox 4200 (20 lbs) • Application paper (manual face-up feed) – Label – Envelope – OHP paper (Transparency) <Size> 14" (355.6 mm) x 8.5" (215.9 mm) (Max.) 5" (127mm) x 3" (76.2mm) (Min.) <Thickness> – Automatic feed: 16 to 28 lbs (60 to 105 g/m^2) – Manual feed: Label, Envelope, OHP paper (transparency), 16 to 32 lbs (60 to 120g/m^2)	
(6) Printing speed	First print:	13 seconds (A4) (after warm-up)
	Continuous print:	8.1 sheets/minute (Letter) 7.7 sheets/minute (A4)
	Warm-up time:	35 seconds (at room temperature 77 ˚F (25 ˚C))
(7) Paper feeding method	Automatic paper feed or manual paper feed	
(8) Paper delivery method	Face up	
(9) Resolution	600 dpi x 1200 dpi	
(10) Power input	230 VAC ±10%	

(11) Power consumption

		OP8p Plus
Peak:	Approx.	450W
Typical operation:	Approx.	180W
Idle:	Approx.	37W
Power save mode:	Approx.	6W

(12) Temperature and humidity

	Temperature	Humidity
During operation	10 to 32 ˚C	20 to 80% RH (relative humidity)
In storage	–10 to +43 ˚C	10 to 90% RH (relative humidity) No condensation is permissible.

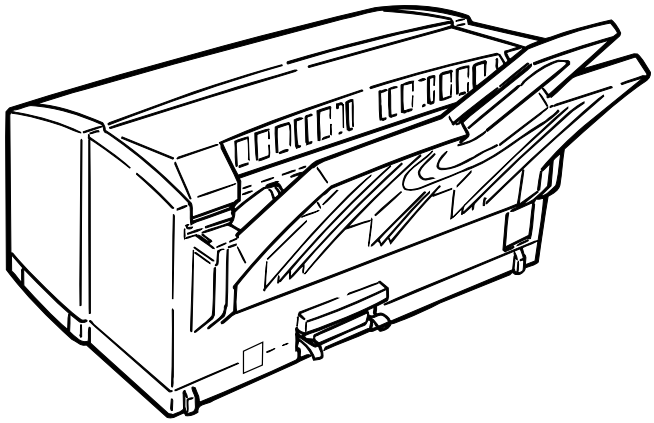
Caution: Temperature and humidity in storage are measured with the OKIPAGE 8p/8w being packed; they are valid for one year.

(13) Noise (conformity with ANSI)	During operation: Avg. Standby:	50 dB (A), slow (without peak sounds) Background level
(14) Consumables	Toner cartridge kit Image drum cartridge	1,500 (5% duty) ····· 45g cartridge kit 10,000 (at continuous printing)

1.5 Safety Standards

1.5.1 Certification Label

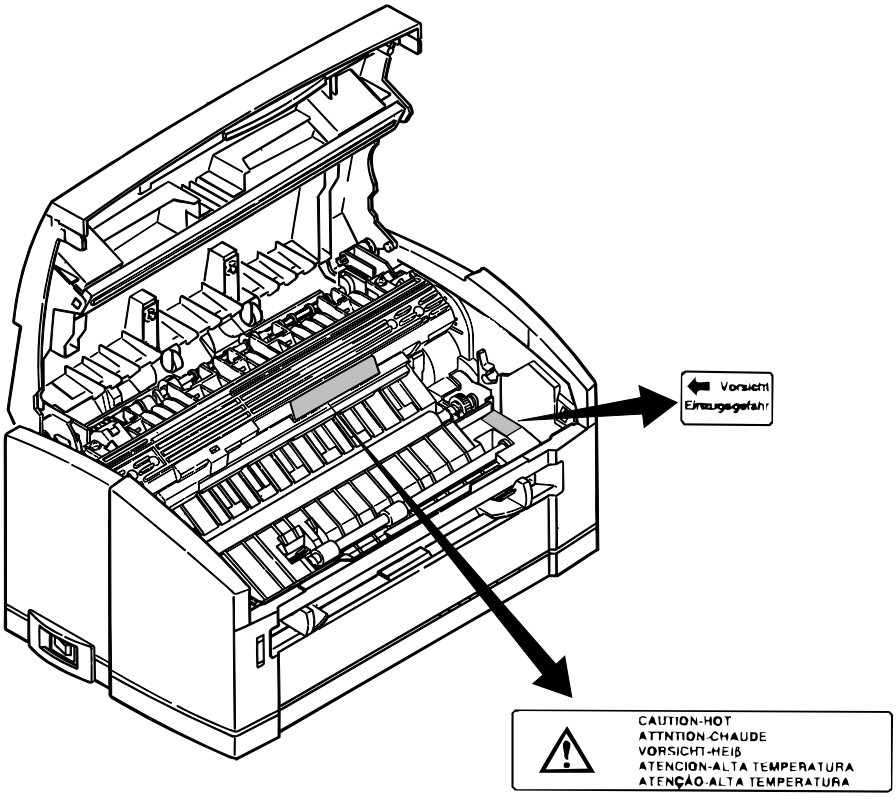
The safety certification label is affixed to the following location of the OKIPAGE 8p Plus



1.5.2 Warning Label

Warning labels are affixed to the locations that may cause bodily injury.

During maintenance, do work with enough care while following instructions on these warning labels.



2. OPERATION DESCRIPTION

The OKIPAGE 8p Plus consists of a main control board, two high-voltage power supply board, a power supply unit, and an electro-photographic processor. The OKIPAGE 8p Plus receives print data from a higher-level interface and sequentially stores it in memory. The OKIPAGE 8p Plus decodes and edits the received data while storing print data from the interface in memory. It sequentially transfers the edited data to the LED head for each dot line. The electro-photographic processor then prints the data on sheets of paper.

The display of the higher-level host is used for device operation and status display.

Figure 2-1 is the block diagram of the OKIPAGE 8p Plus.

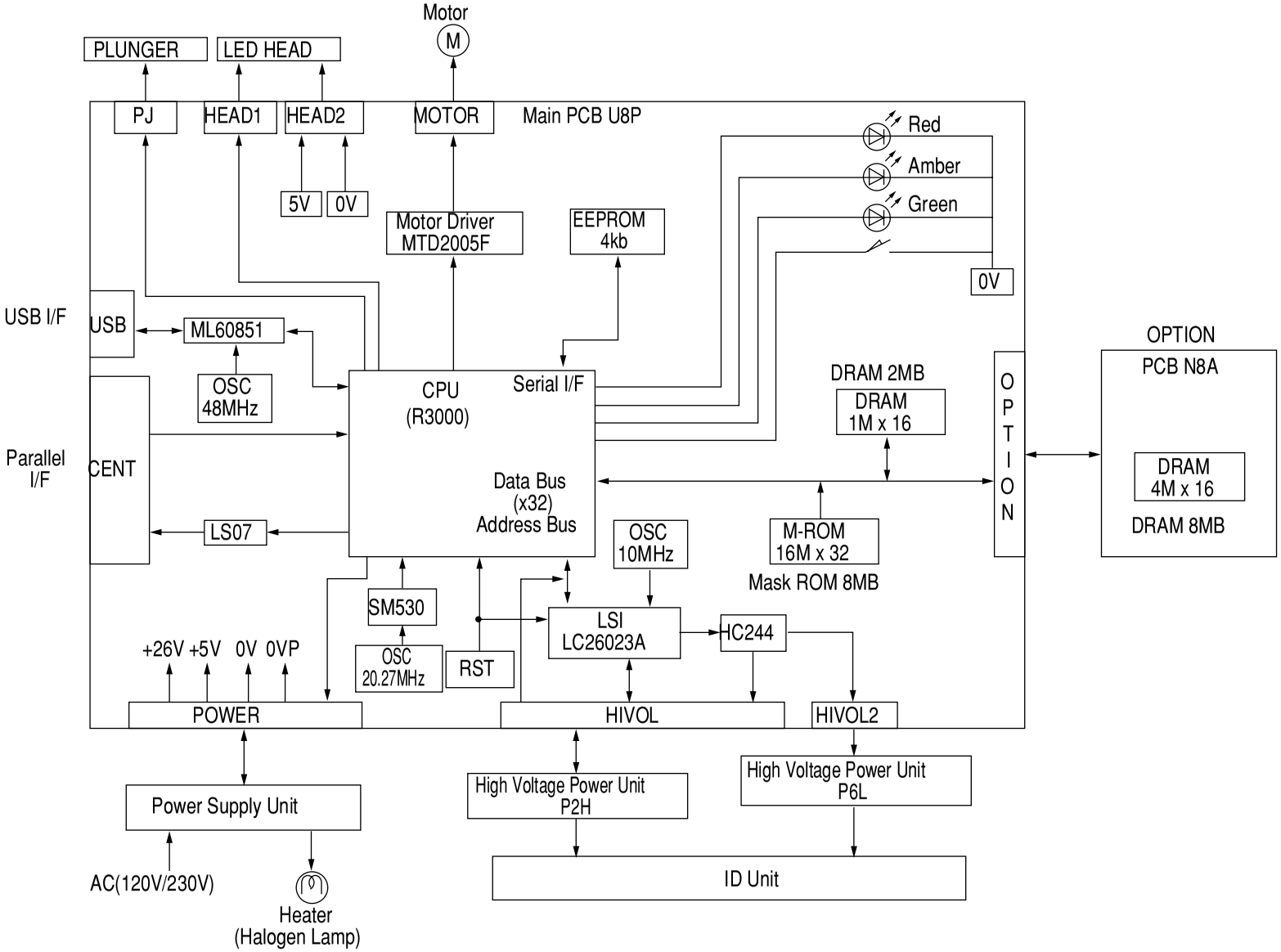


Figure 2-1-1 OP8p Plus Block Diagram

2.1 Main Control Board

The main control board consists of a one-chip CPU, a program ROM, a DRAM, an EEPROM, a host interface circuit, and a mechanism driving circuit. The mechanism driving circuit consists of a LED head, a main motor, and an electromagnetic clutch.

(1) One-chip CPU

- OKIPAGE 8p Plus

  The one-chip CPU is a custom CPU (32-bit internal bus, 32-bit external bus, 40-MHz clock). This CPU has the functions listed in the table below.

Built-in Device	Function
DRAM controller	Controls DRAM.
DMA controller	Transfers image data from Parallel I/F to DRAM, from DRAM to a video output port and between CPU and DRAM.
Parallel interface controller	Controls the parallel interface.
Video output port LED STB output port	Controls LED head.
Timer	Generates various control timings for monitoring paper feeding and a paper size.
I/O port	Inputs and outputs the sensor signals and motor signals, etc. Also performs I/O for EEPROM.
USB Interface Controller	Controls the USB Interface

(2) Program & Font ROM

The Program & Font ROM store the various types of emulation program and fonts. Mask ROM is used for a Program & Font ROM.

(3) DRAM

DRAM is used as resident memory.

(4) EEPROM

EEPROM holds the following data:
- Menu data
- Counter value
- Adjustment value

(5) Parallel interface

The parallel interface receives parallel data from the host; it conforms to the Centronics specification. IEEE-1284 B: – directional parallel is supported.

(6) USB interface receives serial data from the host. The serial interface conforms to USB specification 1.0

(7) 8MB of DRAM is resided on the RAM Option board.

2.2 Power Supply Unit

The power supply unit supplies +5 V and +26 V to the main control board according to 230 VAC / 120 VAC.

Output voltage	Application
+5 V	Used to generate a logic circuit and a high voltage.
+26V	Used to drive the motor and electromagnetic clutch.

The power supply unit also contains a heater drive circuit.

2.3 High-Voltage Power Supply Board

(1) High-Voltage power supply circuit

The high-voltage power supply circuit generates the following voltages required for the electro-photographic processor from +5 V according to the control sequence from the main control board. When the cover is open, +5 V supply is automatically interrupted to stop high-voltage output.

Output	Voltage	Application	Remarks
CH	–1.3 KV	Voltage to be applied to a charge roller.	P2H-PCB
DB	–265 V/+265 V	Voltage to be applied to a developing roller.	P2H-PCB
SB	–550 V/ 0 V	Voltage to be applied to a sponge roller.	P2H-PCB
CB	+400 V/–1.35 KV	Voltage to be applied to a cleaning roller.	P6L-PCB
TR	+500 V ~ +3.5 KV/–750 V	Voltage to be applied to a transfer roller.	P2H-PCB

Caution: The TR voltage varies with medium and transfer roller impedance.

(2) Sensors

The high-voltage power supply board consists of the high-voltage power supply circuit that supplies power to the electro-photographic processor system and the photosensor that detects a paper feeding system and toners.

Figure 2-2 shows the sensor layout drawing.

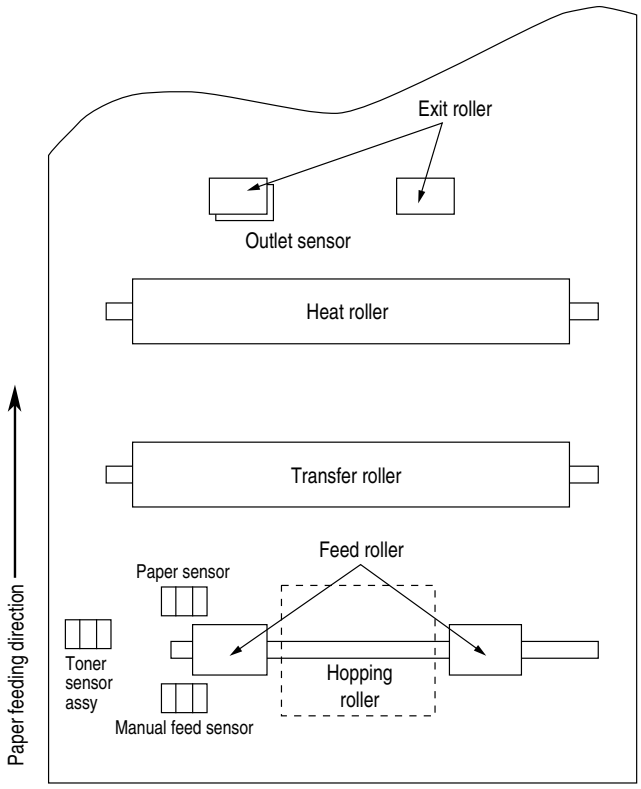


Figure 2-2

Sensor	Function	Sensing State
Manual feed sensor	Monitors whether paper was inserted into the manual feed sensor section.	ON: Paper exists. OFF: No paper exists.
Paper sensor	Detects the leading part of the paper. Monitors paper feeding.	ON: Paper exists. OFF: No paper exists.
Outlet sensor	Monitors paper feeding and the paper size according to the paper sensor arrival and passing time.	ON: Paper exists. OFF: No paper exists.
Toner sensor	Detects the low toner status.	ON (long): Toner low OFF (short): Toner High

2.4 Electro-Photographic Processor

The electro-photographic processor prints out the image data to be sent from the main control board on sheets of paper. Figure 2-3 shows the layout drawing of the electro-photographic processor.

(1) Image drum unit

The image drum unit makes a toner adhere to the formed electrostatic latent image with static electricity. This electrostatic latent image is formed by the lights irradiated from LED heads.

(2) Electromagnetic clutch

The electromagnetic clutch controls the rotation of the hopping roller according to signals from the control block.

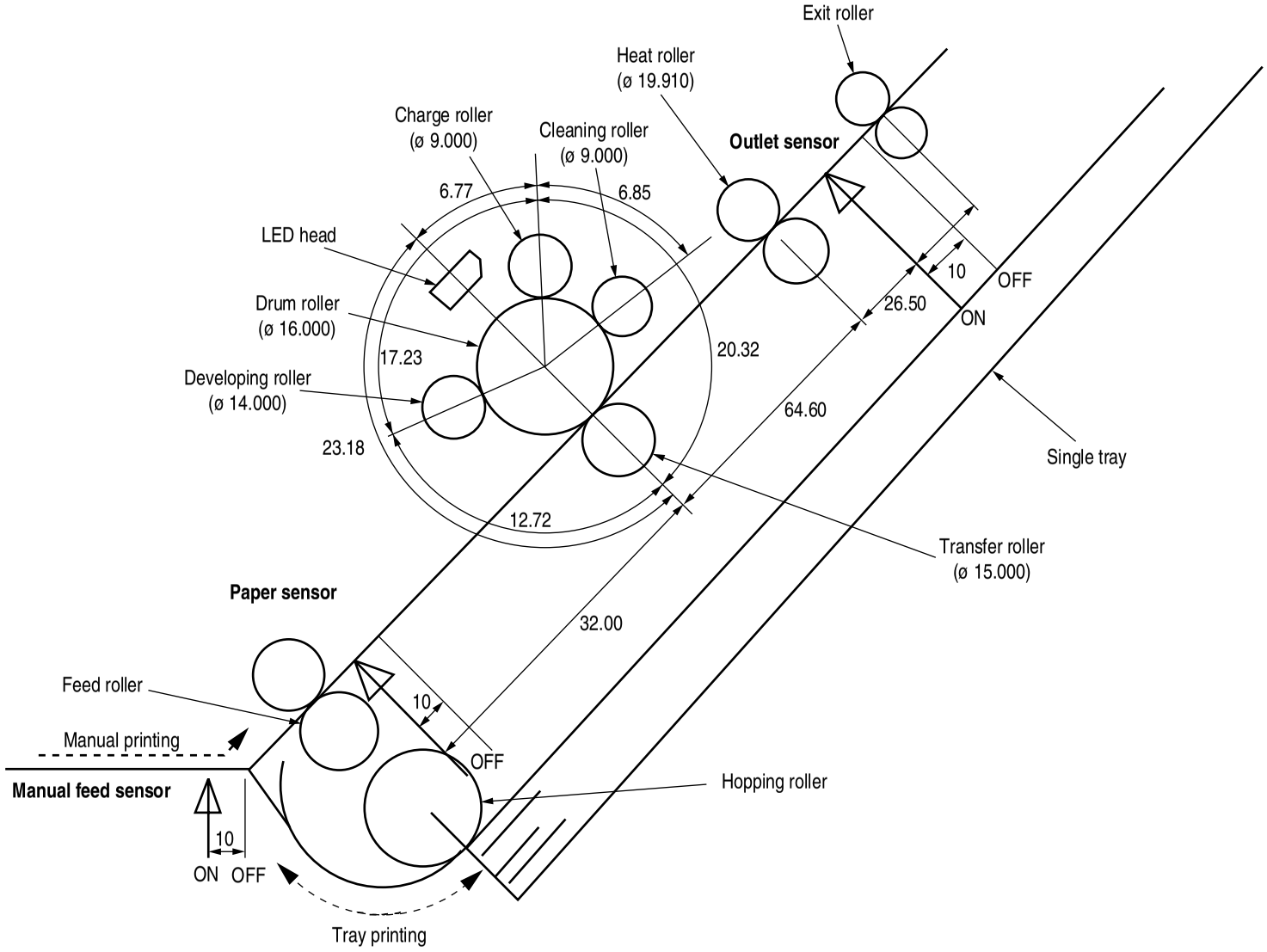


Figure 2-3 Layout Drawing of Electro-Photographic Processor

(3) Pulse motor (Main)

This pulse motor of 48 steps/rotation is two-phase excited by the signal from the main control board; it performs feeding control by switching normal rotation to reverse rotation or vice versa and turning on/off the electromagnetic clutch. The relationship between the main motor, electromagnetic clutch, resist gear, drum gear, hopping roller is shown in the table below and on the subsequent pages.

Main Motor	Electromagnetic Clutch	Hopping Roller	Regist Gear	Drum Gear	Operation
Normal rotation	OFF	Non-rotation	Non-rotation	Rotation	Warm-up
Reverse rotation	ON	Rotation	Rotation	Rotation	Hopping
	OFF	Non-rotation	Rotation	Rotation	Prinitng

(4) LED head

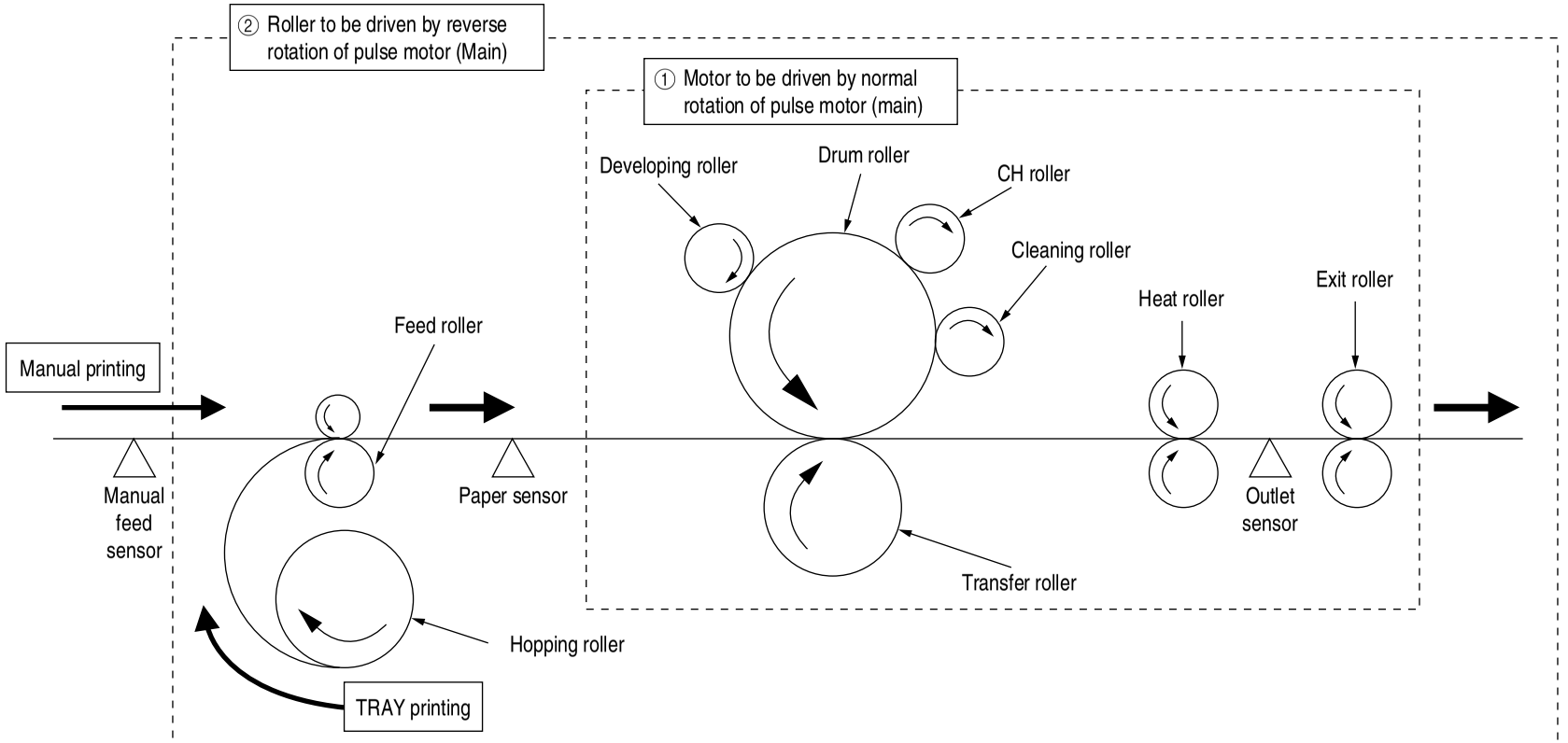
The shift and latch registers receive image data from the main control board for each dot line. 4,992 LEDs are driven to radiate the image drum.

(5) Heat Assy

The heat Assy consists of a heater, a heat roller, a thermistor, and a thermostat.

The power supply unit supplies AC voltage to the heater according to the HEATON signal from the main control board to heat the heat roller. The main control board monitors the heat roller temperature via the thermistor and keeps the temperature constant by turning on/off the heater AC voltage supply.

If the heat roller temperature rises abnormally, the thermostat of the heater voltage supply circuit functions to forcibly suspend the AC voltage supply.



Roller control by pulse motor (main)

① Normal rotation of pulse motor (main):	Drum roller, transfer roller, cleaning roller, CH roller, developing roller, heat roller, exit roller rotation
② Reverse rotation of pulse motor (main):	Drum roller, transfer roller, cleaning roller, CH roller, developing roller, heat roller, exit roller, feed roller, hopping roller rotation Hopping operation from the tray, however, is performed when the electromagnetic clutch is turned on.

Figure 2-4 Schematic Drawing of OKIPAGE8p Plus Paper Feeding

2.5 Electro-Photographic Process

(1) Electro-photographic process

The electro-photographic process is outlined below.

① Charging

The surface of the OPC drum is charged negatively and uniformly by applying the DC voltage to the CH roller.

② Exposure

Light emitted from the LED head irradiates the negatively charged surface of the OPC drum. The surface potential of the irradiated surface attenuates to form the electrostatic latent image corresponding to the image signal.

③ Development and residual toner recovery

The negatively charged toner is brought into contact with the OPC drum, adhering to the electrostatic latent image on the OPC drum by static electricity. This adhesion causes the electrostatic latent image to change to a visible image.

At the same time, the residual toner on the OPC drum is attracted to the developing rollerby static electricity.

④ Transfer

When paper is placed over the image drum surface, the positive charge which is opposite in polarity to that of the toner, is applied to the reverse side by the transfer roller. The toner is attracted by the positive charge and is transferred onto the paper. This results in the transfer of the toner image formed on the image drum onto the paper.

⑤ Cleaning

The cleaning roller temporarily attracts the residual toner on the transferred OPC drum with static electricity, then returns the toner to the OPC drum.

⑥ Fusing

The transferred unfused toner image is fused to a sheet of paper by applying heat and pressure to the image.

Figure 2-5 is a flow for the electro-photographic process.

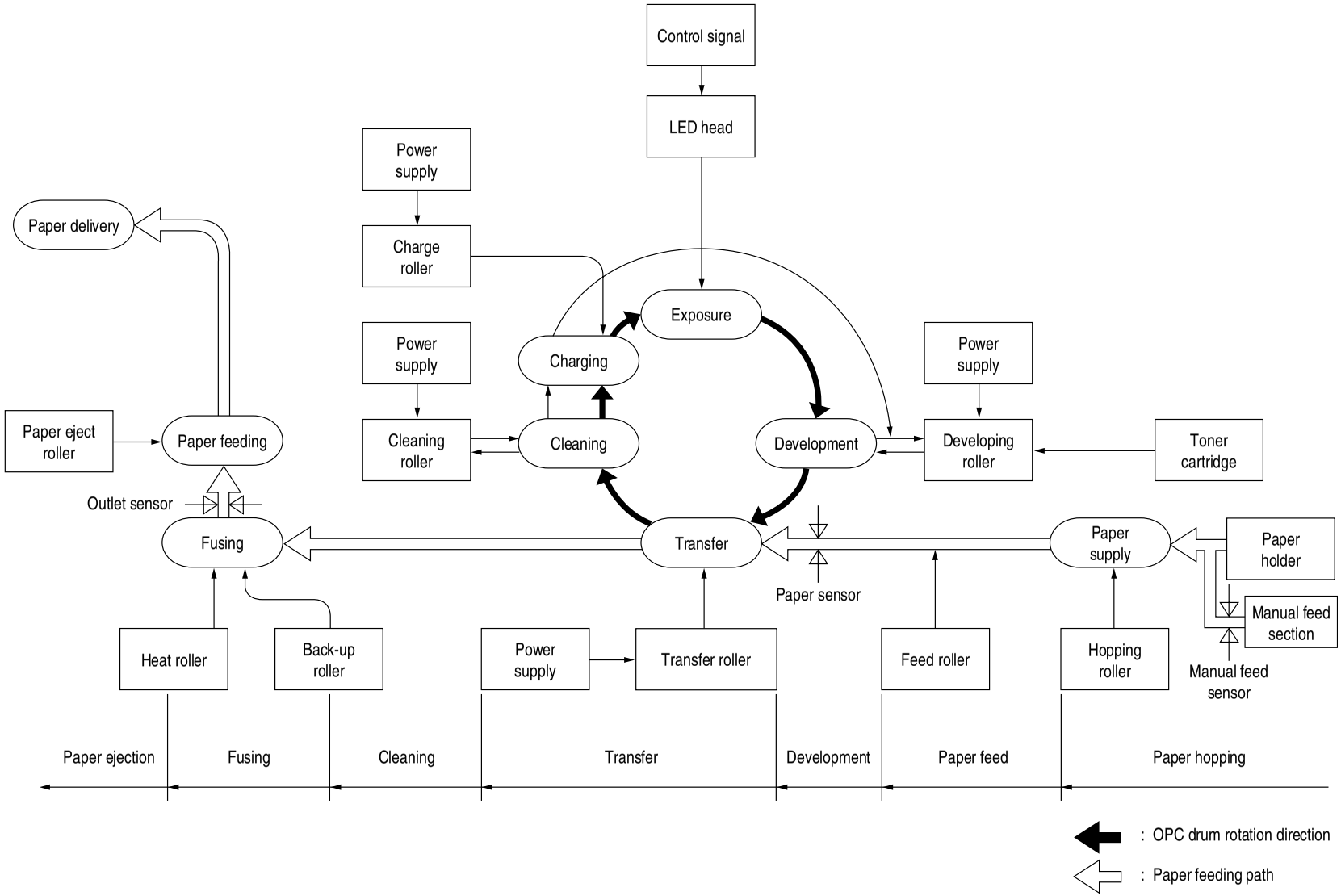


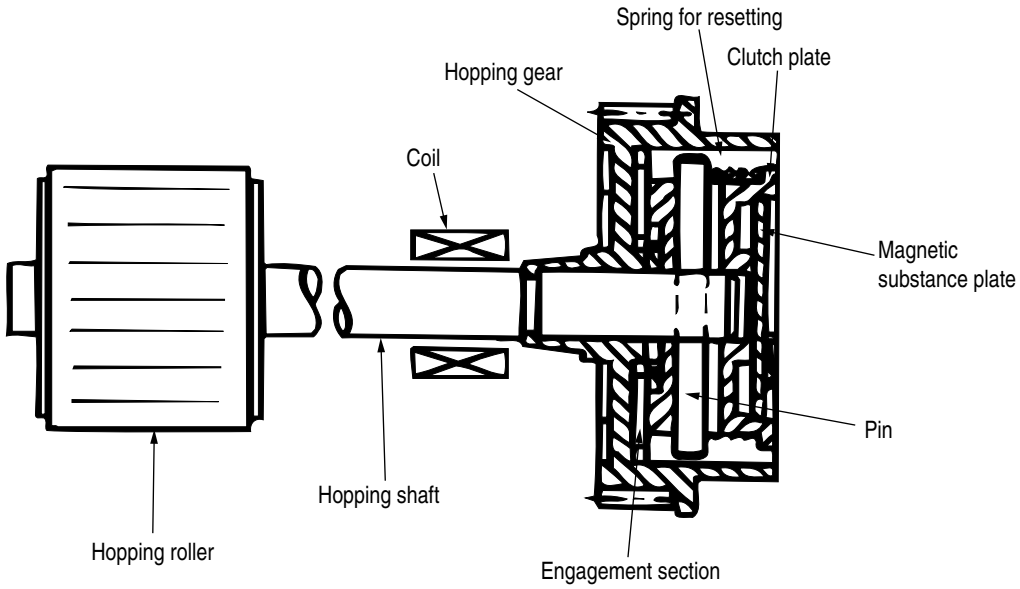
Figure 2-5 Flow for Electro-Photographic Process

2.5.1 Explanation of Each Process Operation

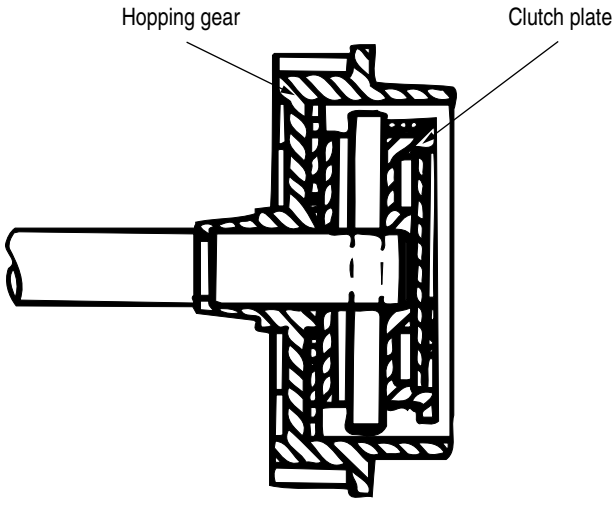
(1) Hopping

As shown in the figure below, the clutch for hopping is turned on/off according to current ON/OFF to a coil.

When the clutch is OFF



When the clutch is ON

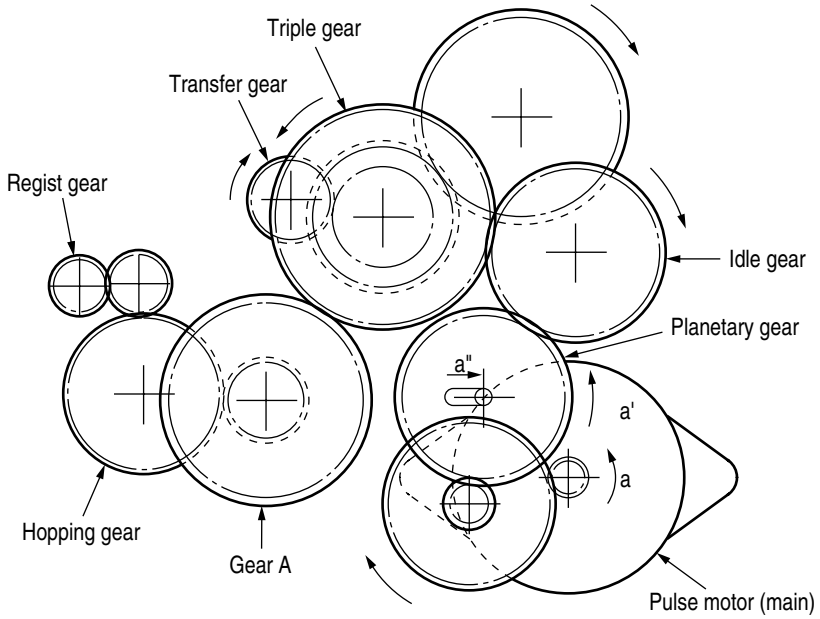


When the clutch is on, the hopping gear engages with the clutch plate to rotate the hopping roller.

When the clutch is off, the hopping gear is separated from the clutch plate by the spring for resetting, disabling the rotation of the hopping roller.

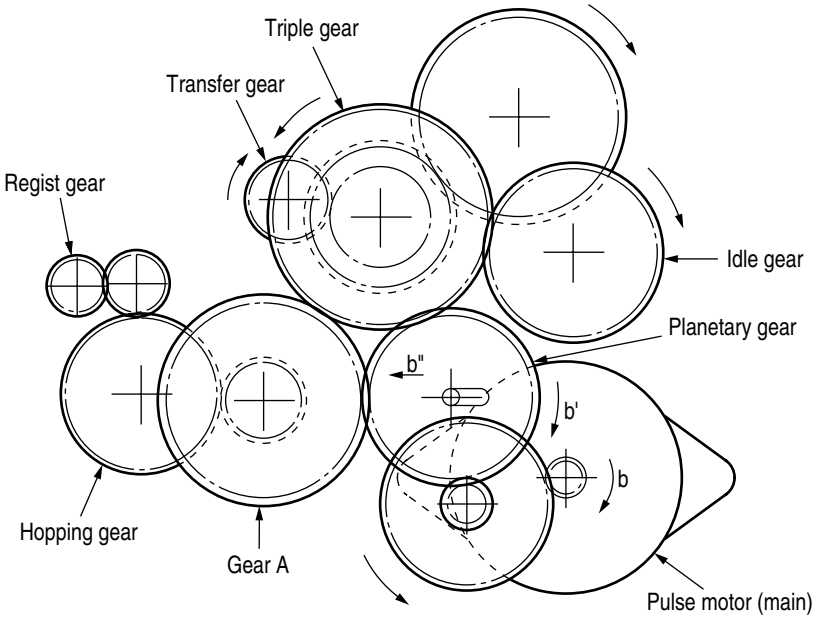
(2) Printing and warm-up

At warm-up



Rotate the pulse motor (main) in the a direction. The planetary gear rotates in the a' direction, dislocating its position in the a" direction. This causes the planetary gear to be separated from gear A. The hopping gear will not rotate. The triple gear and transfer gear rotate via the idle gear to drive the EP unit.

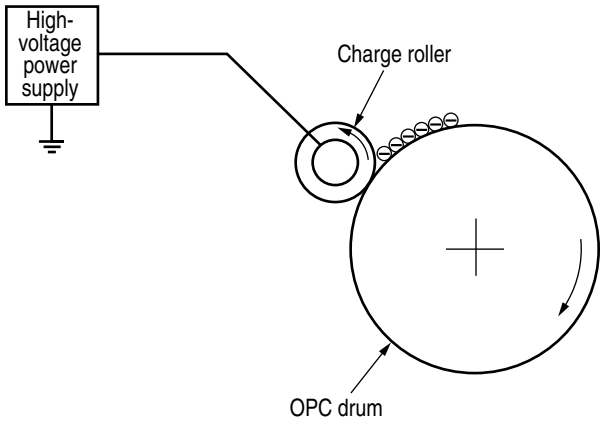
At printing



The paper is further advanced in synchronization to the print data.

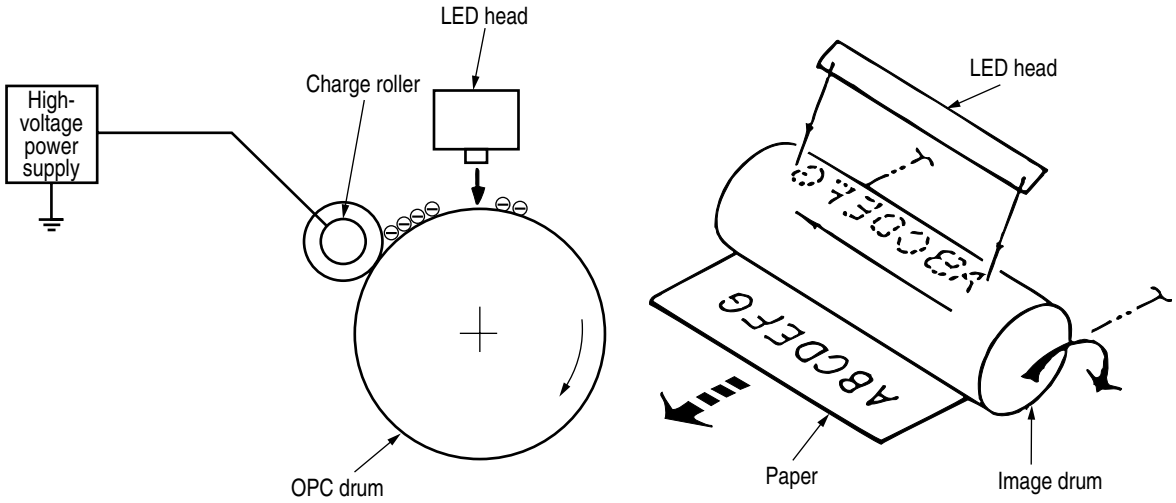
(3) Charging

Charging is performed by applying DC voltage to the charge roller that is in contact with the surface of the OPC drum.



(4) Exposure

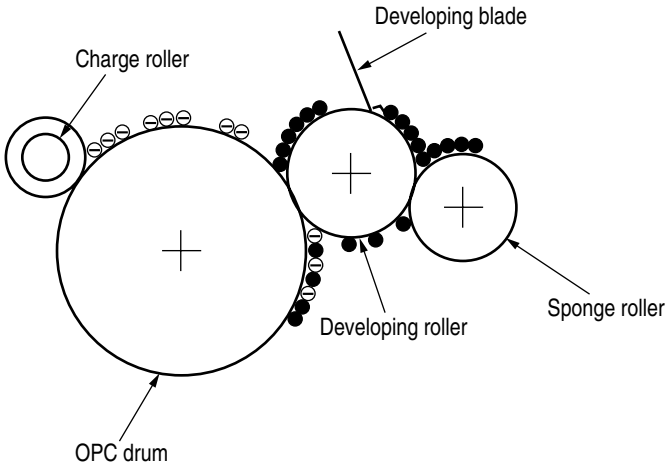
Light emitted from the LED head irradiates the negatively charged surface of the OPC drum. The surface potential of the irradiated surface attenuates to form the electrostatic latent image corresponding to the image signal.



(5) Development

The electrostatic latent image on the surface of the OPC drum is changed to a visible toner image by applying a toner to it. Development is performed in the contact part between the OPC drum and developing roller.

① The sponge roller negatively charges a toner and applies it to the developing roller.



② The toner applied to the developing roller is thin-coated by the developing blade.

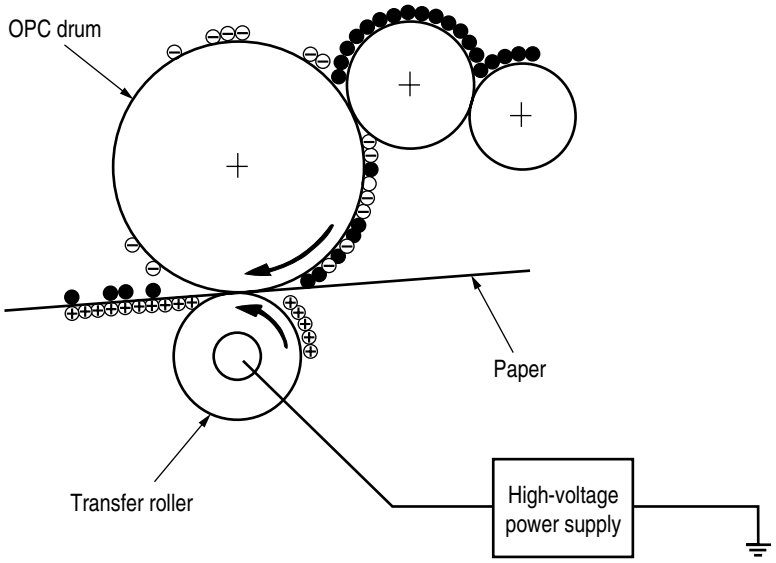
③ A toner adheres to the exposure part of the OPC drum in the contact part between the OPC drum and developing roller. This causes the electrostatic latent image to be changed to a visible image.

(6) Transfer

The transfer roller is composed of conductive sponge material. This roller is set so that the surface of the OPC drum and sheets of paper will adhere closely.

A sheet of paper is placed on the surface of the OPC drum and the positive charge opposite to the negative charge of a toner is applied from the reverse side by the transfer roller.

When a high negative voltage is applied from the power supply to the transfer roller, the positive charge induced on the surface of the transfer roller moves to the paper side at the contact part between the transfer roller and the sheet of paper. The positive charge on the lower side of the sheet of paper then causes the negatively charged toner adhering to the surface of the OPC drum to move to the upper side of the sheet. This enables transfer to the sheet of paper.

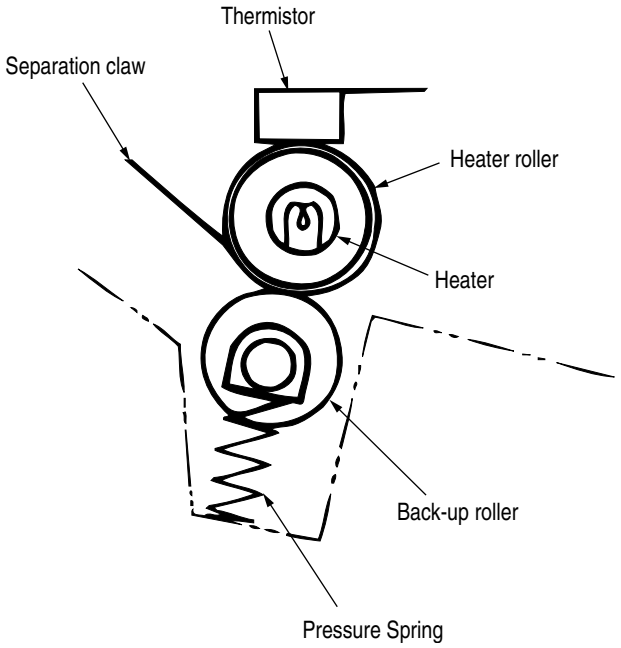


(7) Fusing

The transferred unfused toner image is fused to a sheet of paper because heat and pressure are applied when it passes between the heat roller and back-up roller.

The Teflon-coated heat roller contains a 400 W heater (Halogen lamp) that heats the heat roller. The thermistor on the surface of the heat roller keeps the temperature of the heat roller constant. A thermostat is also installed for safety. If temperature rises abnormally, this thermostat opens to suspend voltage supply to the heater.

The back-up roller is pressurized to the heat roller by the pressure spring on each side.



(8) Cleaning

After transfer has terminated, the cleaning roller temporarily draws in the untransferred residual toner adhering to the OPC drum with static electricity and then returns it to the OPC drum.

2.6 Paper Jam Detection

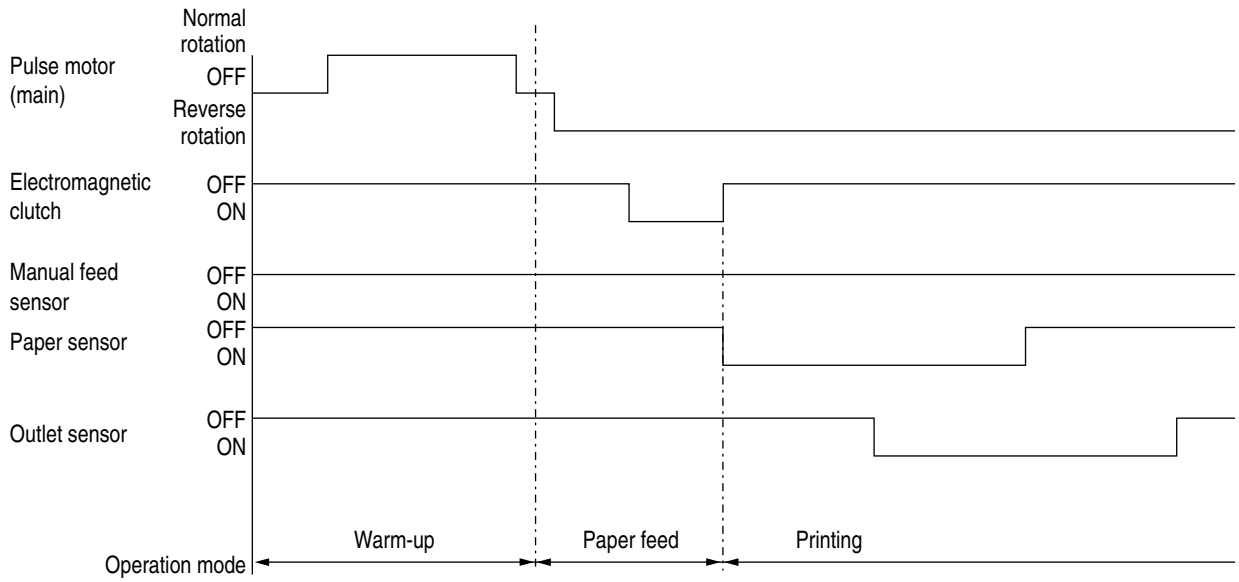
The OKIPAGE 8p Plus monitors the paper status when the power supply is on and during printing. In the following cases, the OKIPAGE 8p Plus interrupts the printing process as a paper jam. Printing can be recovered by opening the cover, removing the jammed paper, and closing the cover.

Error	Cause of Error
Paper inlet jam	• Only the manual feed sensor detects "Paper exists" when the power supply is on. • The leading part of the paper does not reach the paper sensor although hopping operation was performed three time.
Paper feed jam	• The leading part of the paper does not reach the outlet sensor within a fixed time after it has passed the paper sensor.
Paper outlet jam	• The trailing part of the paper does not pass the outlet sensor within L mm after the leading part of the paper has passed the outlet sensor. 2.52" (64 mm) ≦ L ≦ 15.77" (400.6 mm)
Paper size error	• The trailing part of the paper does not pass the paper sensor within L mm after the leading part of the paper has passed the paper sensor. 2.52" (64 mm) ≦ L ≦ 15.77" (400.6 mm)

Paper Feed Check List

Type of Error	Supervisory Sensor	Reference Value	Error	
			Pluse	Minus
Paper feed error	Electromagnetic clutch ON/ Paper sensor ON	69.8	35	—
Paper feed jam1	Paper sensor ON/ Outlet sensor ON	122.9	20.0	—
Paper size error	Paper sensor ON/ Paper sensor OFF	2.52" (64 mm) ≦ L ≦ 15.77" (400.56 mm)	—	—
Paper outlet jam	Outlet sensor ON/ Outlet sensor OFF	2.52" (64 mm) ≦ L ≦ 15.77" (400.56 mm)	45.0	45.0
Paper feed jam 2	Paper end sensor OFF/ Outlet sensor OFF	121.9	20.0	20.0

Unit: mm

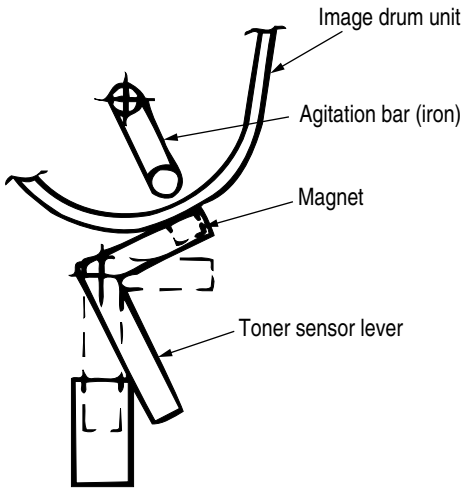


Timing Chart for Paper Feed (Tray Feed)

2.7 Toner Low Detection

- Hardware configuration of toner sensor

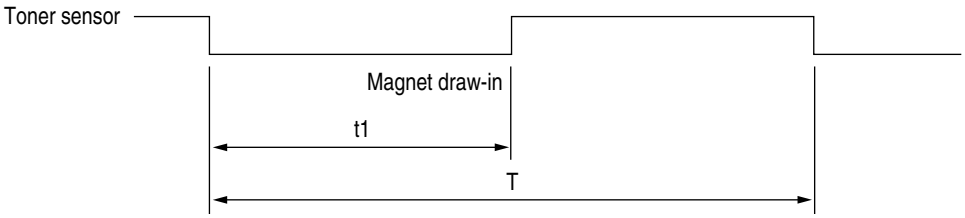
  The figure below shows the hardware configuration of the toner sensor.



Hardware Configuration of Toner Sensor

- Toner detection method

  (1) Toner sensor monitoring conditions are shown in the figure below.



Caution: The toner sensor is not monitored when the drum is inactive.

(a) When the toner-low state continues twice, Toner Low occurs. (This state is monitored at a cycle of 40 milliseconds.)

(b) When the toner-full state continues twice, Toner Low is released. (This state is monitored at a cycle of 40 milliseconds.)

(c) When the toner sensor does not change over two cycles (T x 2), the toner sensor alarm state occurs.

(d) After the EP unit has been replaced (after the drum counter has been reset), Toner Low is not detected when the drum counter indicates 1 to 100 counts.

(2) The basic rotation cycle of the toner sensor is as follows:

	T time
Basic rotation cycle of toner sensor	2.5 sec.
Toner low time	t1 > 0.64 sec.
Toner full time	0.64 sec. > t1 > 0.28 sec.

2.8 Cover Open

Opening the stacker cover turns off the microswitch on the high-voltage power supply board to suspend +5 V supply to the high voltage power supply. This results in the stop of all high-voltage outputs. At the same time, the CVOPN signal is issued to notify the main control board of the switch status and cover open processing is executed.

2.9 Detecting I/D Unit existence

In this model, a micro switch may be activated, applying a high voltage to the machine under a state where the cover is slightly opened. In this case, there is a fear that, when a user insert his hand through the opening, he may be shocked unless an I/D Unit has been installed. (Safety standard measures EN60950: 1992)
Therefore, with mechanism, an interlock system for micro switch shall be added if a machine has no mechanism with I/D Unit inside. Also, for control, I/D Unit existence detection shall be implemented according to the following method.

<Conditions for judging I/D Unit existence>

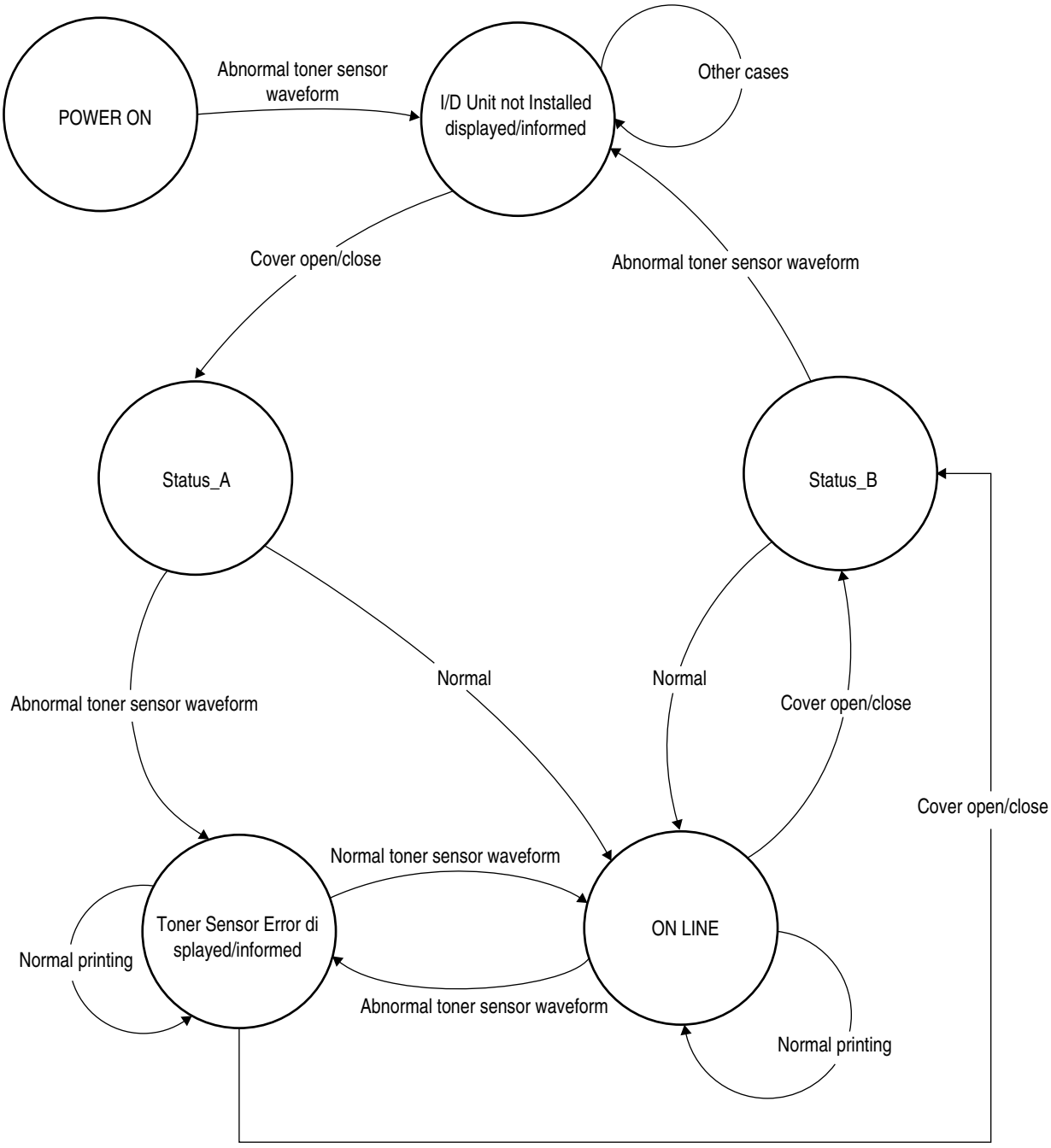
If a toner sensor does not change for 1.2 cycle of toner sensor basic rotation cycle soon after powering on or closing cover, no installed I/D Unit shall be judged, stopping Warming Up motion to shift the machine mode to light malfunction. But this error can be recovered by cover open and close operation after installing I/D Unit.

	T time	Remarks
I/D Unit existence detection time	3.04 sec.	As the toner sensor monitors at intervals of 40 msec. the fractional part should be rounded down.

The conditions for enabling this error should be as follows.

Valid condition	In the case of 31 pages or more in total drum counter
Invalid condition	In the case of 30 pages or less in total drum counter, a significant malfunction toner sensor error shall occur.

But when the toner sensor breaks down with 31 or more counted in total at the drum, I/D Unit not Install will be displayed without fail at power on. Even in this case, the machine should be in printable state so that printing can be guaranteed until the completion of toner repair. (See the drawing in the next page)



OKIPAGE 8p Plus I/D Unit not Installed / Toner Sensor Error

Draft for specification

1. Toner sensor error/I/D Unit not Installed state should not be stored in the EEPROM.
2. A shift to I/D Unit not Installed and Toner Sensor Error shall be made at cover open or close.

OKIPAGE 8p Plus printing speed

Feeding Tray		Tray								Manual							
Media Type		Light	Medium-Light	Medium	Medium-Heavy	Heavy	Special1 (China)	Special2 (Swedish Archive)	OHP	Light	Medium-Light	Medium	Medium-Heavy	Heavy	Special1 (China)	Special2 (Swedish Archive)	OHP
Paper size	Excutive	8	8	8	8	8	8	8	Note1	8	8	8	8	8	8	8	8
	Letter	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8
	Legal 14	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8
	Legal 13	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8
	A4	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8
	JIS B5	8	8	8	8	8	8	8		8	8	8	8	8	8	8	8
	A5	8	8	8	8	8	8	8		8	8	8	8	6	8	8	8
	A6	8	8	8	8	8	8	8		8	8	8	8	6	8	8	8
	Monarch	An envelop will be forcefully set to 6 PPM for manual feeding, narrow in width, thick paper regardless of feeding tray and media type.								An envelop will be forcefully set to 6 PPM for manual feeding, narrow in width, thick paper regardless of feeding tray and media type.							
	COM-10																
	DL																
	C5																
	COM-9																
	Domestic postcard and envelop equivalent	Domestic postcard and envelop equivalent will be forcefully set to manual. (An inquiry to own country is required)								8	8	8	8	6	8	8	8

Note 1) Tray + OHP . OP 8p Plus : not exist in the combination. (driver should not display it on GUI)

3. PARTS REPLACEMENT

This chapter explains how to replace parts, assemblies, and units in the field.

The replacement procedures to be explained here include dismounting, not mounting. When mounting parts, assemblies, and units, reverse the dismounting steps.

3.1 Precautions for Parts Replacement

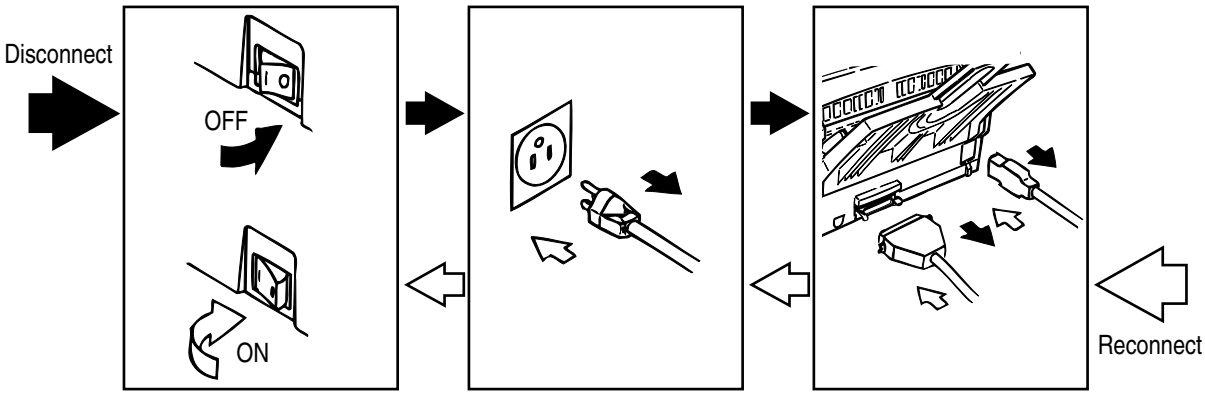
(1) Be sure to dismount the AC cord and interface cable before replacing parts.

(a) Be sure to dismount the AC cord in the following procedures:

i) Turn off the POWER switch of the printer ("0").
ii) Disconnect the AC inlet plug of the AC cord from the AC receptacle.
iii) Disconnect the AC cord and interface cable from the printer.

(b) Be sure to reconnect the printer in the following procedures:

i) Connect the AC cord and interface cable to the printer.
ii) Connect the AC inlet plug to the AC receptacle.
iii) Turn on the POWER switch of the printer ("|").



(2) Do not disassemble parts as long as the printer is operating normally.

(3) Minimize disassembling. (Only the parts indicated in the parts replacement procedures can be dismounted.)

(4) Use only the specified maintenance tools.

(5) Disassemble parts in the specified sequence; otherwise, parts may be damaged.

(6) Temporarily tighten small parts such as screws and collars to the original locations because they tend to be lost easily.

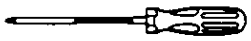
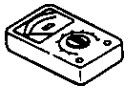
(7) When handling ICs such as CPUs, ROM, and RAM and PC boards, do not wear gloves that easily cause static electricity.

(8) Do not place PC boards directly on devices and floors.

[Maintenance Tools]

Table 3-1 lists the maintenance tools necessary for parts replacement.

Table 3-1 Maintenance Tools

No.	Maintenance Tools		Q'ty	Use	Remarks
1		No. 1-100 Philips screwdriver	1	2~2.5 mm screw	
2		No. 2-100 Philips screwdriver	1	3~5 mm screw	
3		No. 3-100 Philips screwdriver	1		
4		No. 5-200 screwdriver	1		
5		Digital multimeter (tester)	1		
6		Pliers	1		
7		Handy cleaner	1		

[Maintenance Utility]

Table 3-2 Maintenance Utility

No.	Maintenance Utility		Q'ty	Use	Remarks
1		Maintenance utility	1		

3.2 Parts Layout

This section explains the layout of main parts.

[Upper Cover Assy]

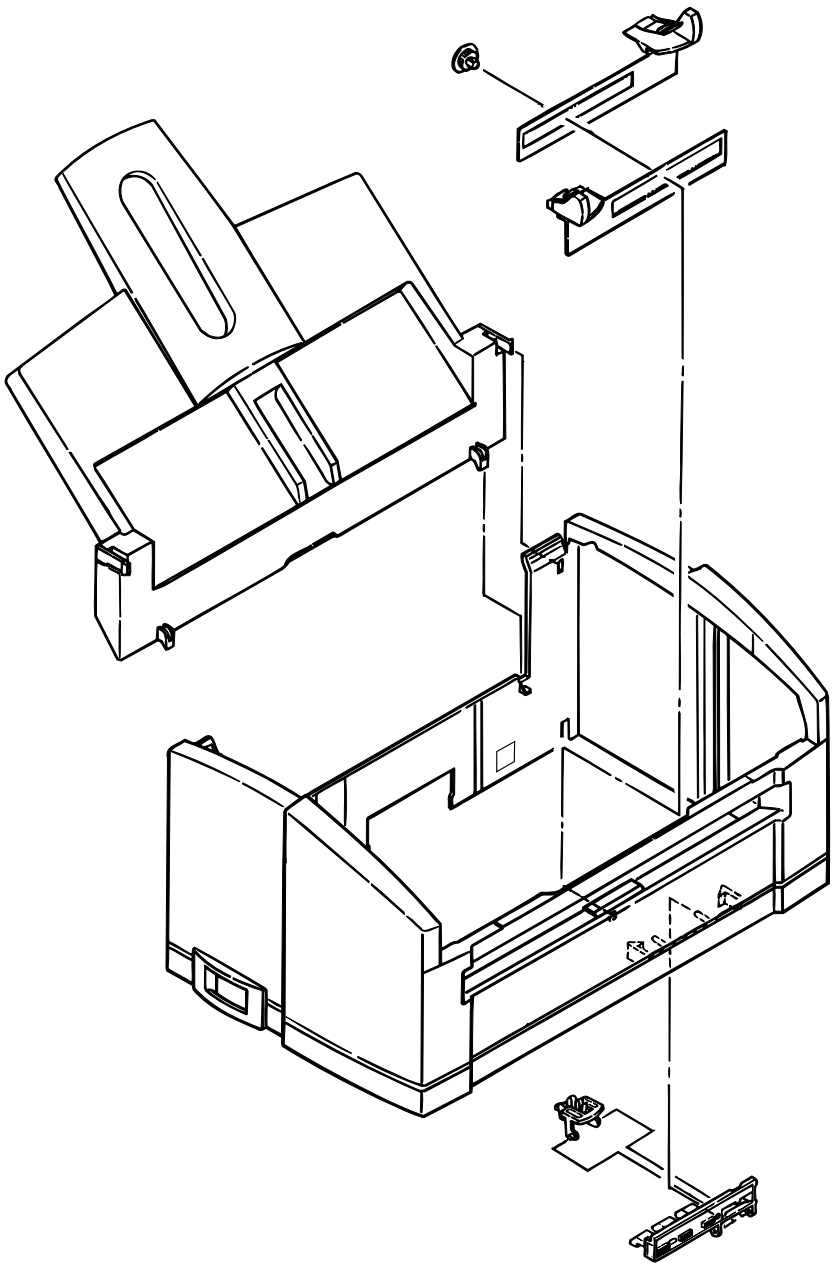


Figure 3-1

Base Frame Unit

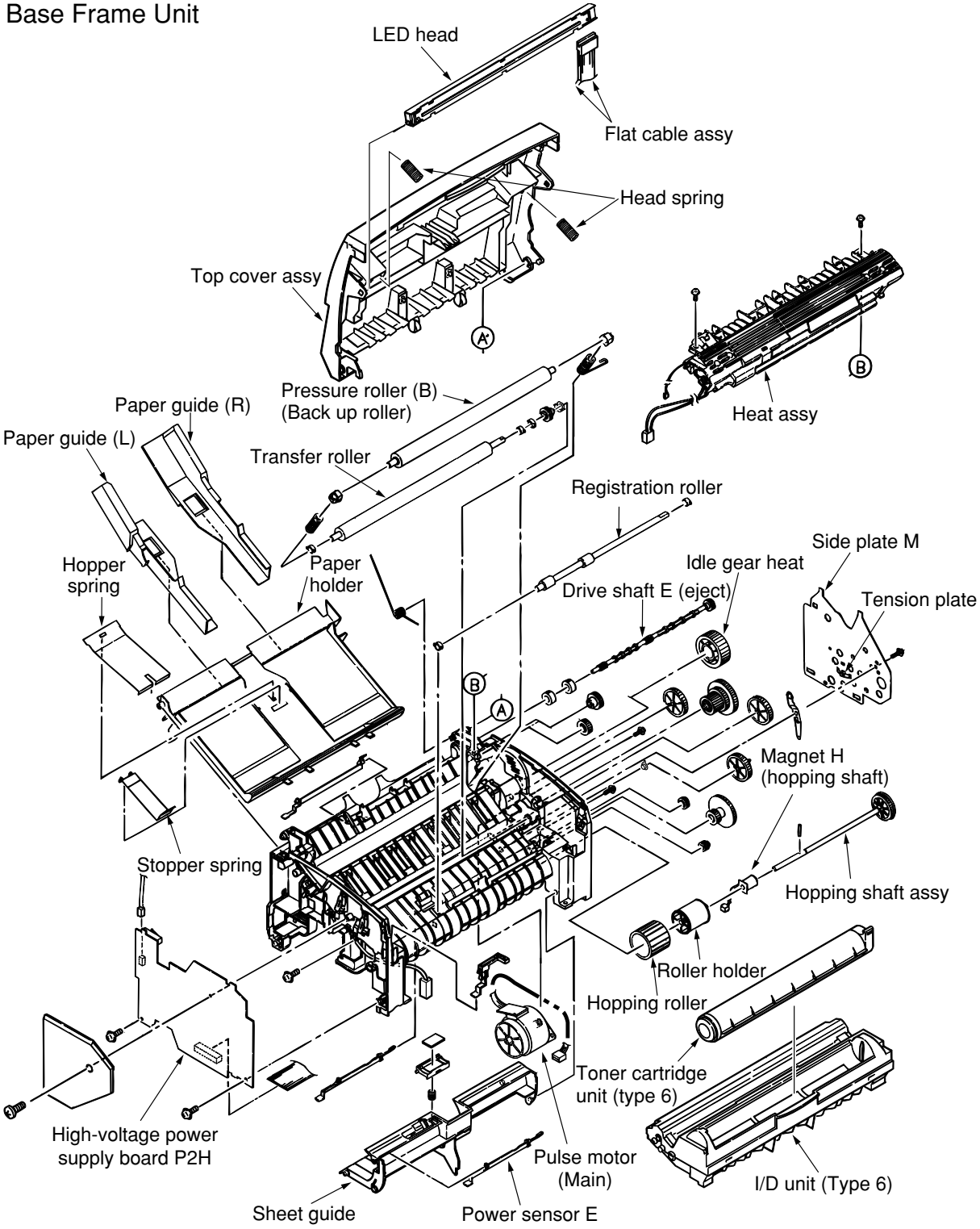


Figure 3-2

Base Plate Unit

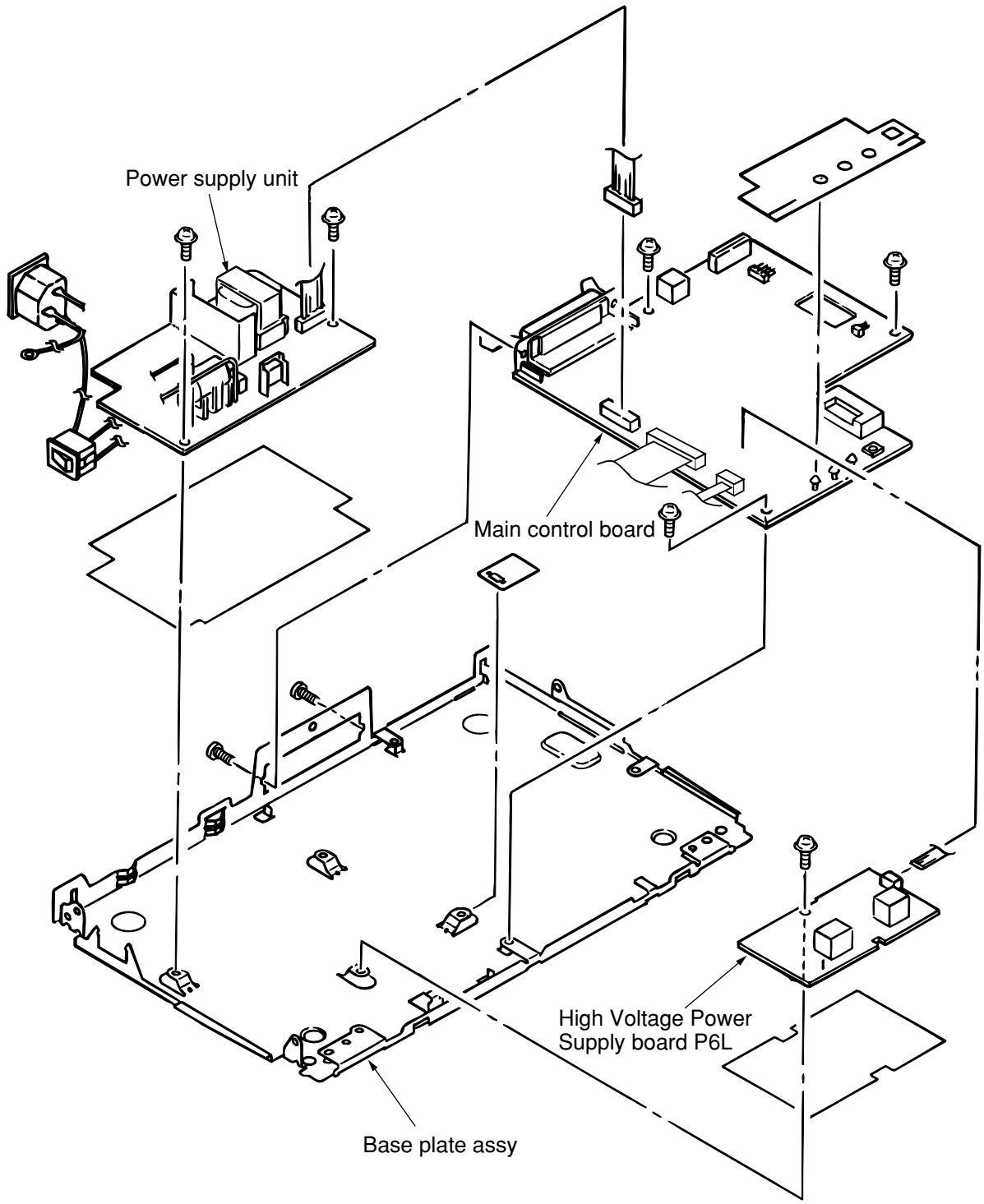


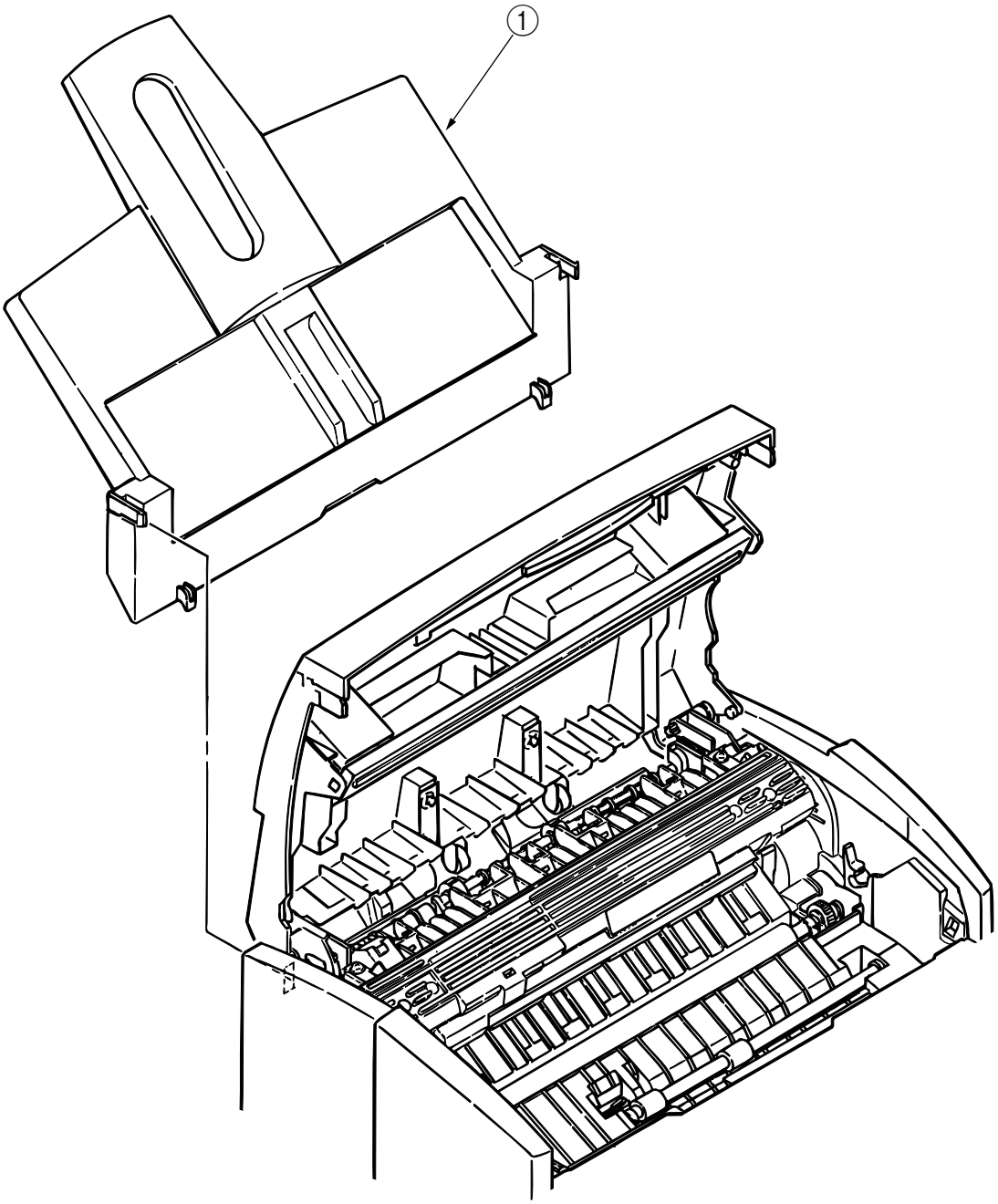
Figure 3-3-1

3.3 Replacing Parts

This section explains how to replace parts and assemblies.

3.3.1 Hopper Plate

(1) Remove two claws and dismount hopper plate j.

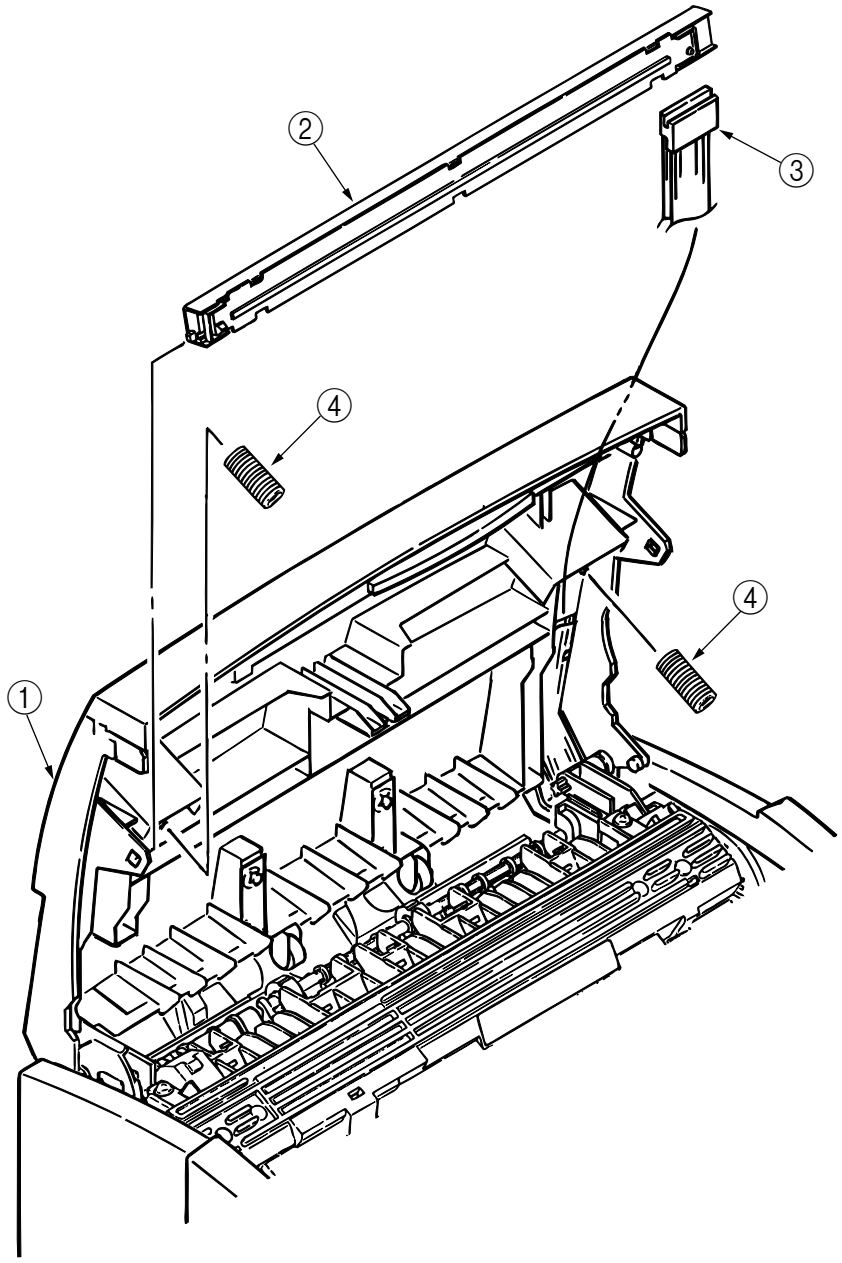


3.3.2 LED Head and Head Spring

(1) Open top cover assy j.

(2) Dismount the left clamp and LED head k. Then, dismount flat cable assy l.

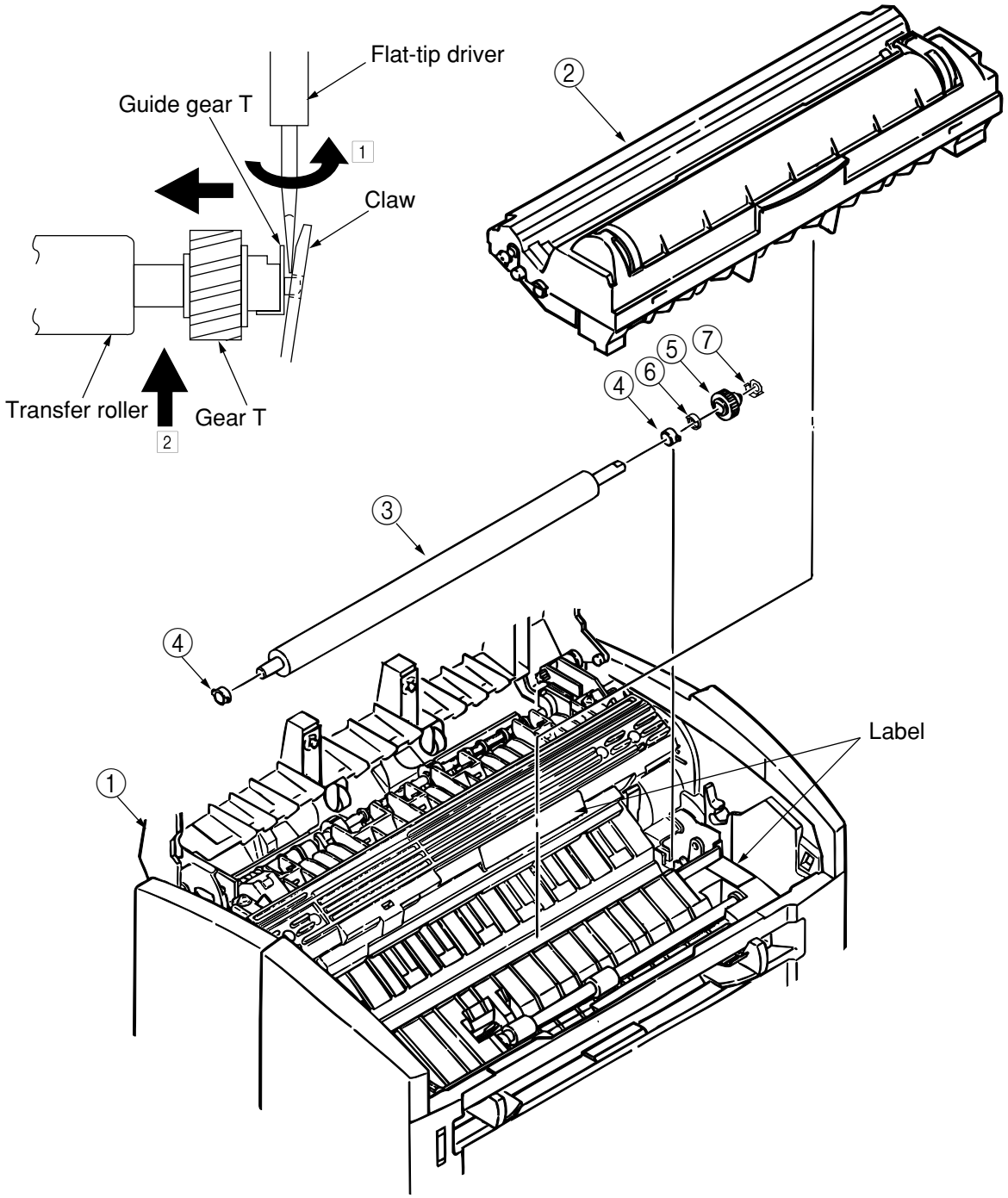
(3) Dismount two head springs m.



3.3.3 Transfer Roller

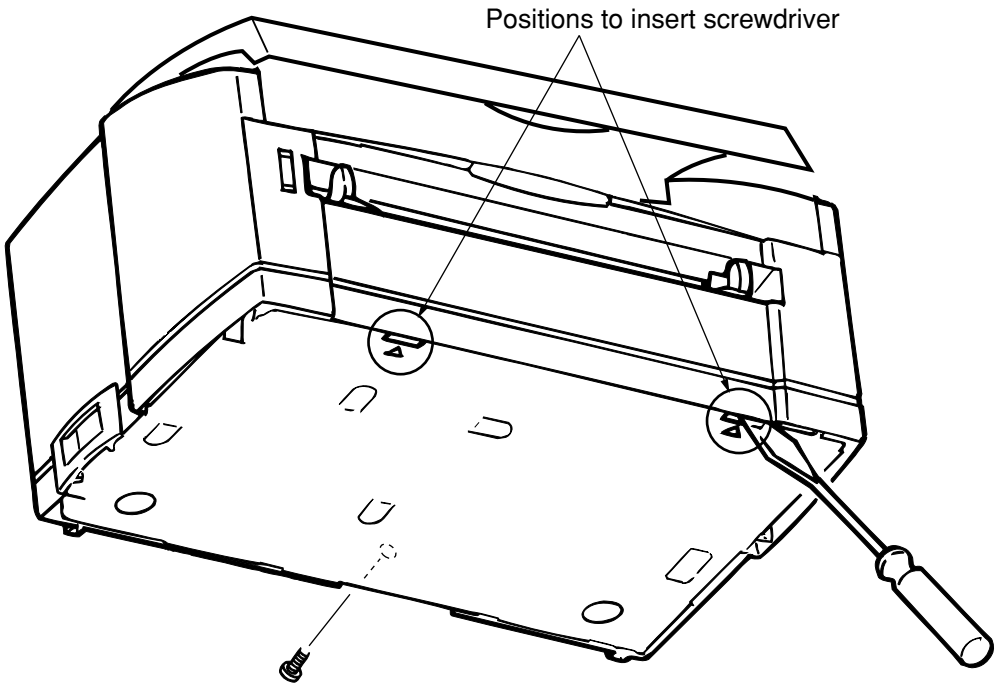
(1) Open top cover assy j and dismount I/D unit (Type 6) k.

(2) Remove the washer TR o (make sure to do it)
[1] : Insert a flat-tip driver between the claw and the guide gear T p in a way of pushing gear n so that it hits the left side and rotate the driver.
[2]: Pull off the post of the gear T n from the hole of the claw by lifting the shaft of transfer roller I with another driver while maintaining the avobe state in [1].



3.3.4 How to remove Cover Upper Assy

(1) Unscrew screws on the rear part.
(2) Open Cover Top Assy. Inserting a screwdriver head into a slot marked ▲ on the Plate Base edge, turn the screwdriver and lift Cover Upper Assy upward. Repeat the same procedure for another slot on the edge.



3.3.5 Upper Cover Assy

(1) Turn off the power switch and unplug the AC cord from the AC socket.

(2) Disconnect interface cable j.

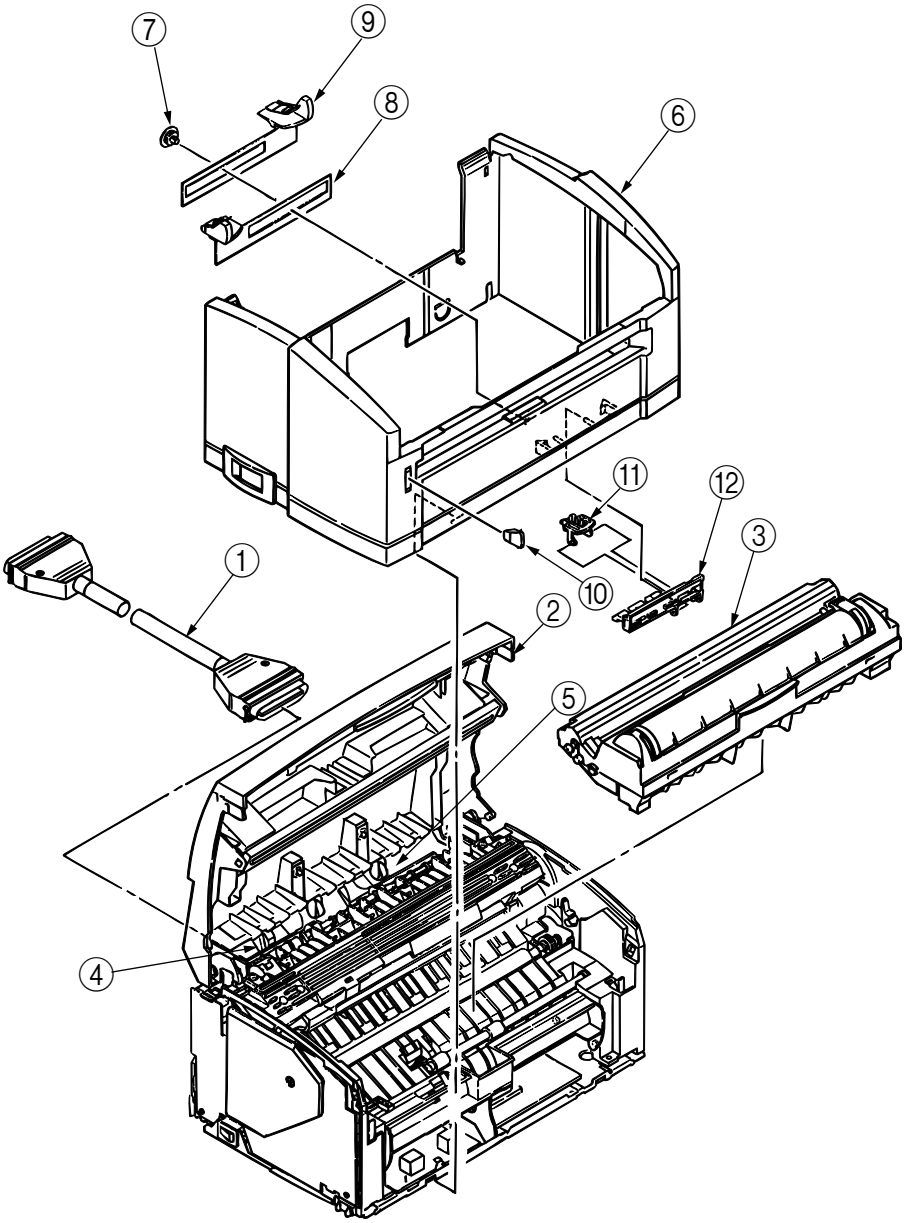
(3) Open top cover assy k and dismount I/D unit (Type 6) l.

(4) Move paper guide (L) m and paper guide (R) n on the rear of the printer to the center.

(5) Remove two front claws of upper cover assy o and lift upper cover assy o.

(6) Dismount spur gear (A) p, guide slide (L) q, and guide slide (R) r.

(7) Dismount lens ⑪ and switch ⑫ .



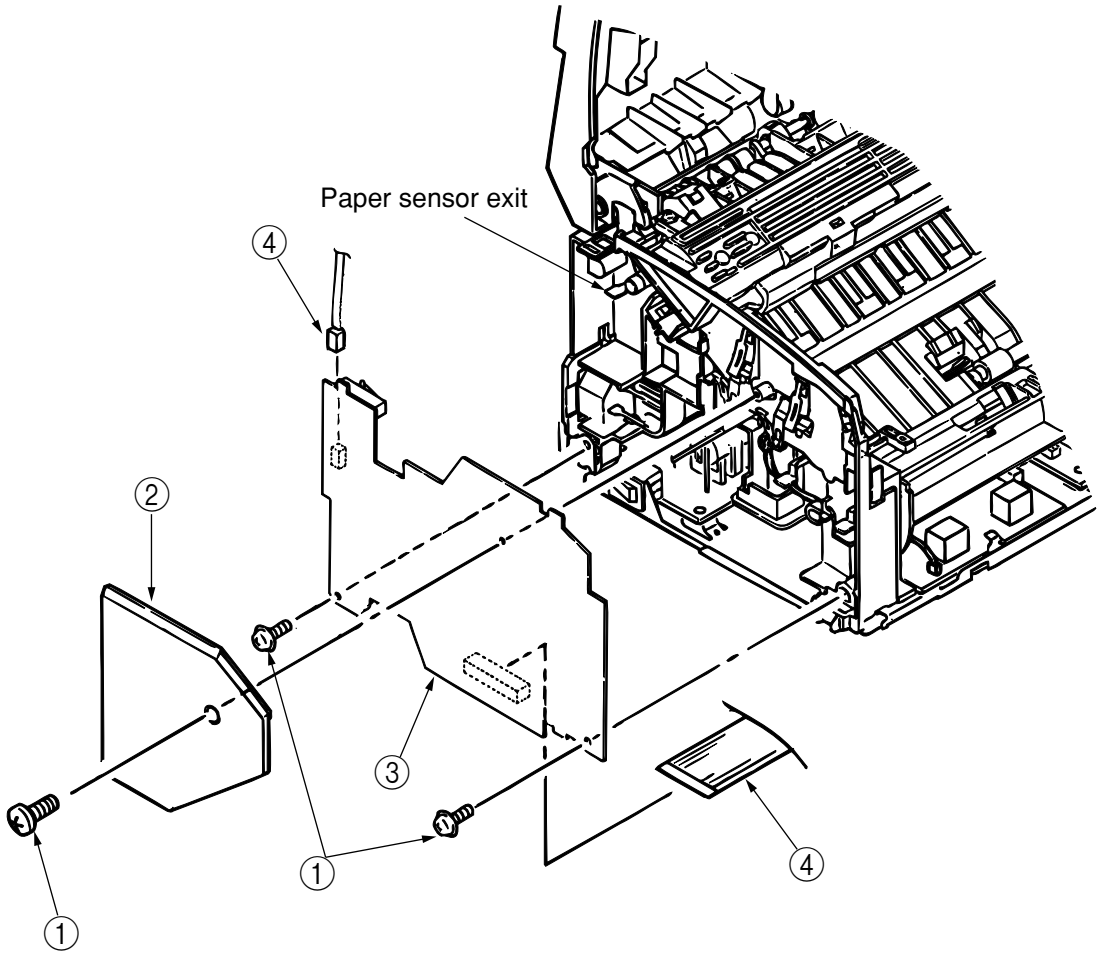
3.3.6 High-Voltage Power Supply Board (P2H)

(1) Dismount upper cover assy. (See Section 3.3.5.)

(2) Remove three screws j and remove the cover k and draw out high-voltage power supply board(P2H) l.

(3) Disconnect all the cables m from high-voltage power supply board(P2H) ③ and dismount high-voltage power supply board(P2H) l.

Caution: Note the following when assembling the high-voltage power supply board(P2H):
- Mount the high-voltage power supply board(P2H) with top cover assy removed or open.
- Take care that cable m will not interfere with the paper sensor exit when it is connected.
- Replacement parts of High-Voltage Power Supply Board (P6L) is see 3.3 18)



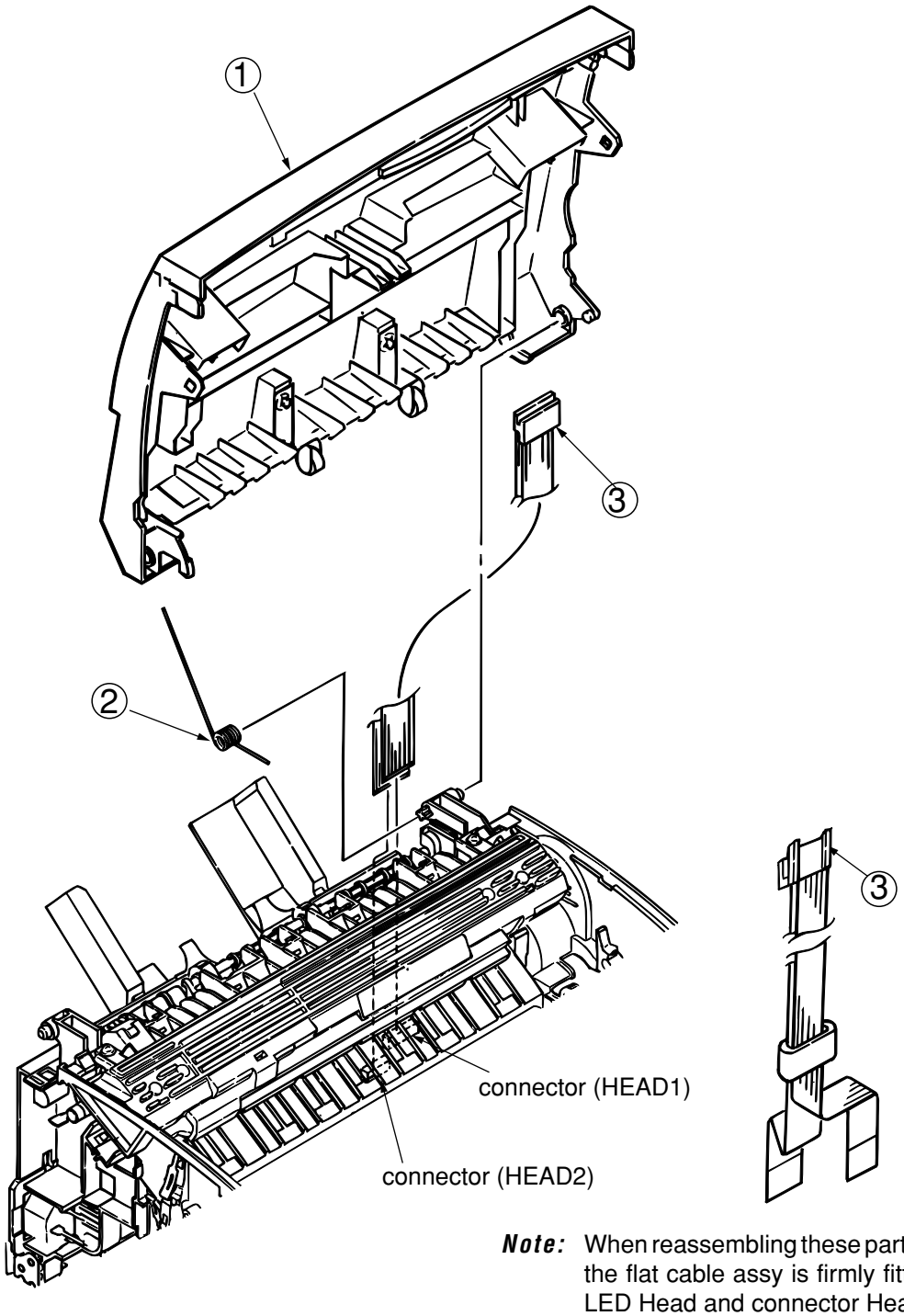
3.3.7 Top Cover Assy and Flat Cable Assy

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the LED head. (See Section 3.3.2.)

(3) Press the right clamp outward and dismount the engagement and top cover assy j. (Tension spring k also comes off at the same time.)

(4) Disconnect connector HEAD1, HEAD2 on the control board and dismount flat cable assy l.



Note: When reassembling these parts, make sure that the flat cable assy is firmly fitted with both the LED Head and connector Head 1 and Head 2. An improper fit may damage the control board and LED head.

3.3.8 Paper Holder

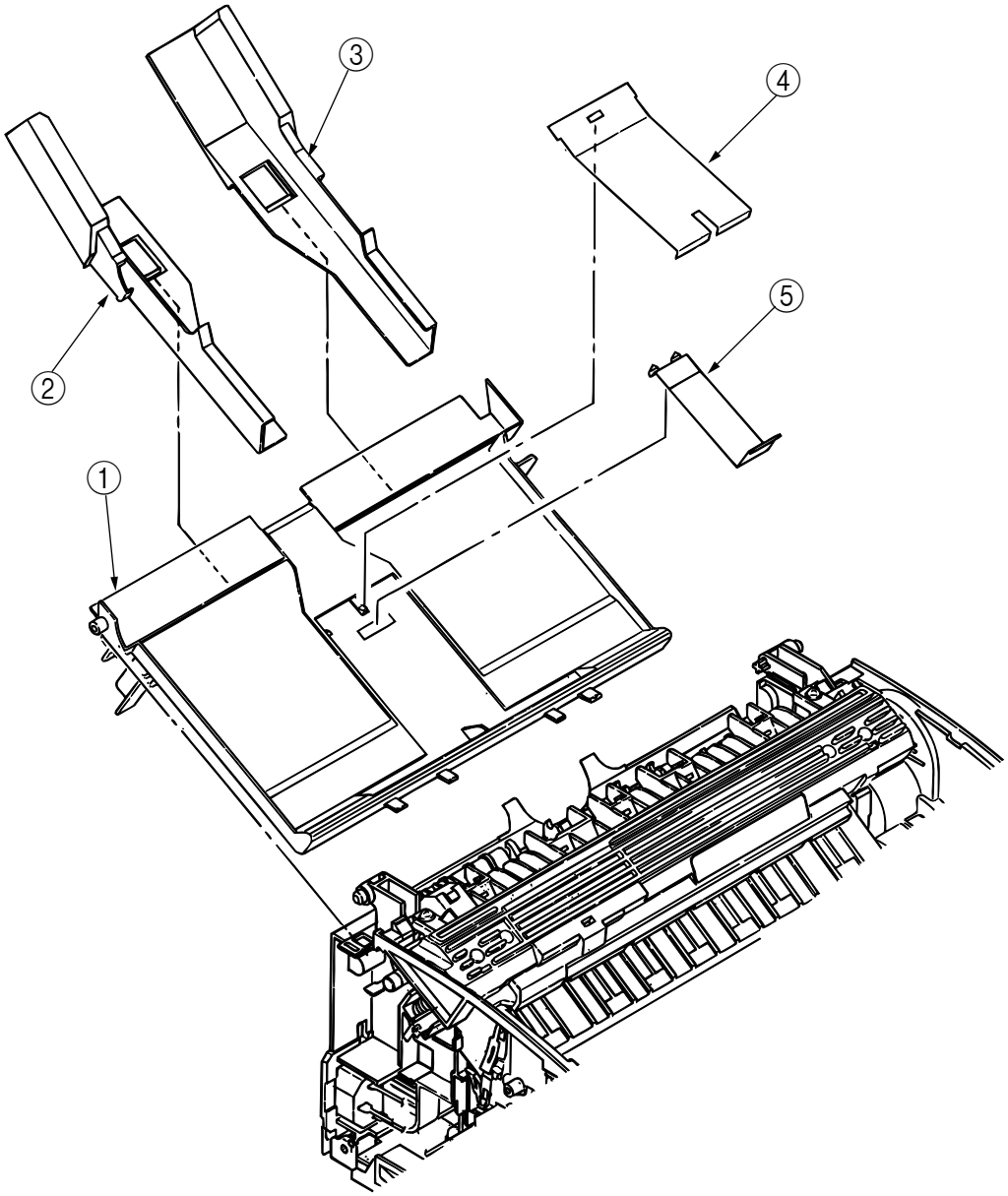
(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount paper holder j.

(3) Unlock and dismount paper guide (L) k and paper guide (R) l.

(4) Remove the claw and dismount hopper spring m.

(5) Remove the claw and dismount stopper spring n.



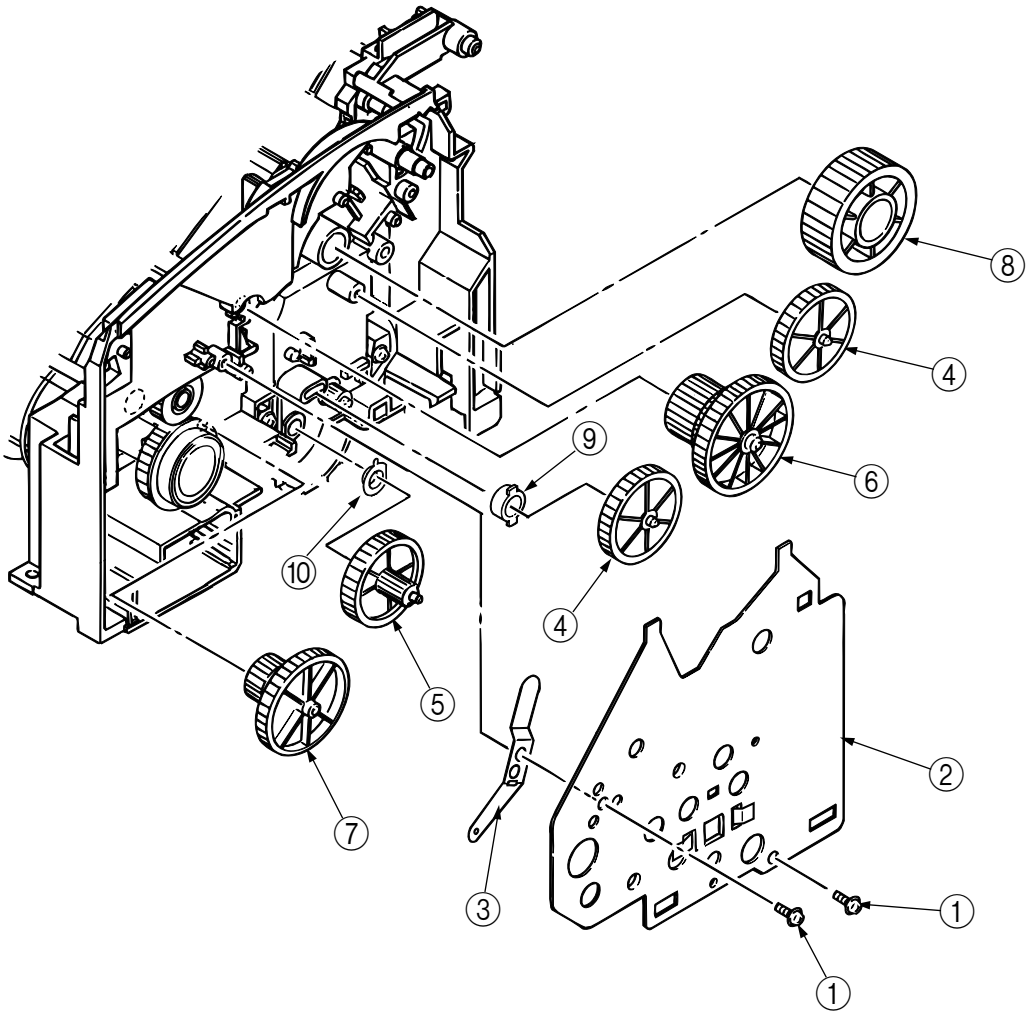
3.3.9 Side Plate M and Idle Gear

Perform parts replacement while making the base frame assy stand so that side plate M will face upward.

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Remove two screws j and two claws, then dismount plate side M②.

(3) Dismount earth plate I, two idle gears P m, idle gear Mn, idle gear 3Ro, idle gear 2Rp, idle gear heat q, regist bearing r and bearing gear s.



3.3.10 Heat Assy

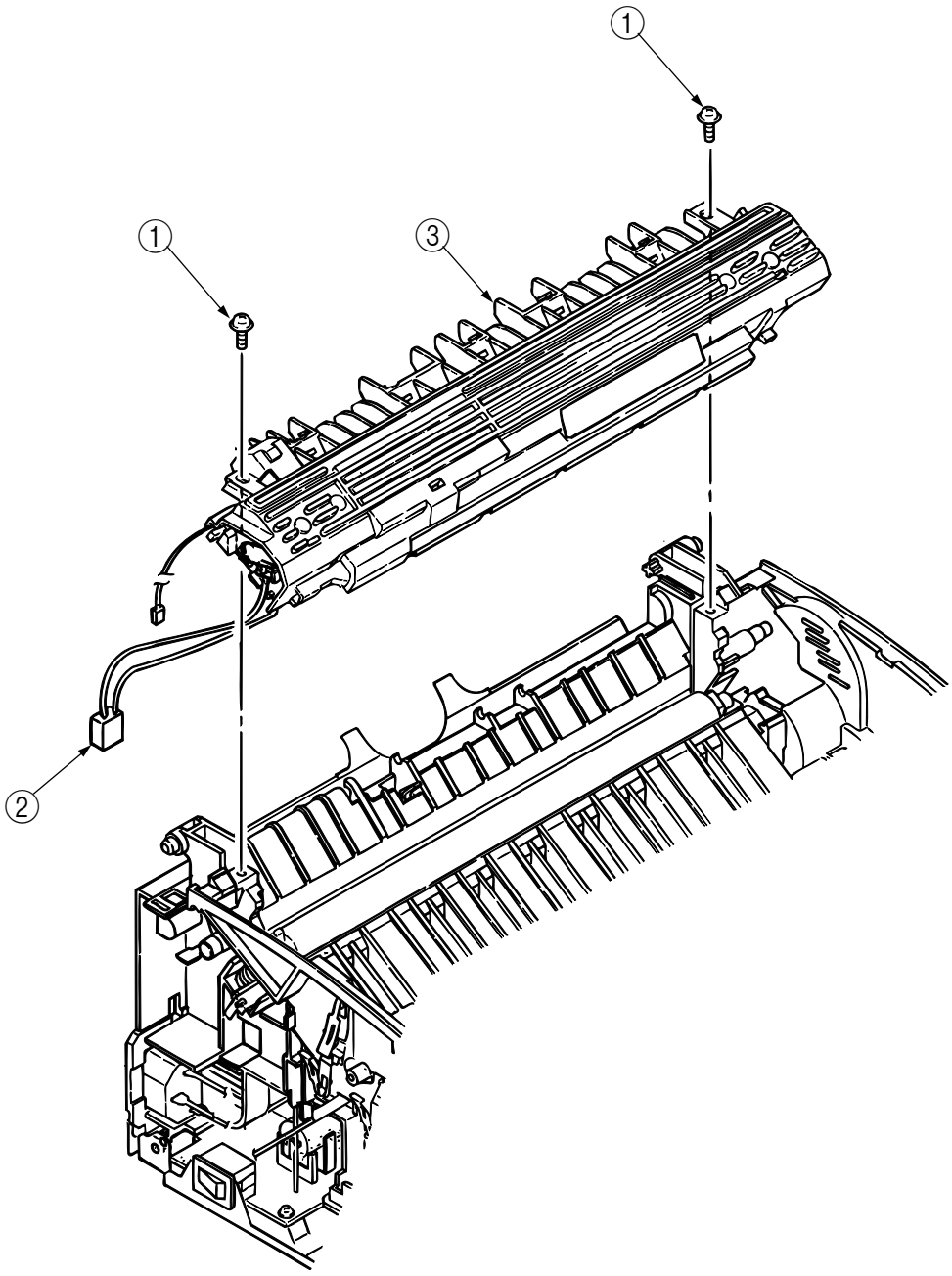
This section explains how to dismount the heat assy and parts in the assy.

<Dismounting the heat assy>

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the high-voltage power supply board (P2H). (See Section 3.3.6.)

(3) Remove two screws j, disconnect connector k, and dismount heat assy l.



3.3.11 Drive Shaft E (Eject) and Eject Roller

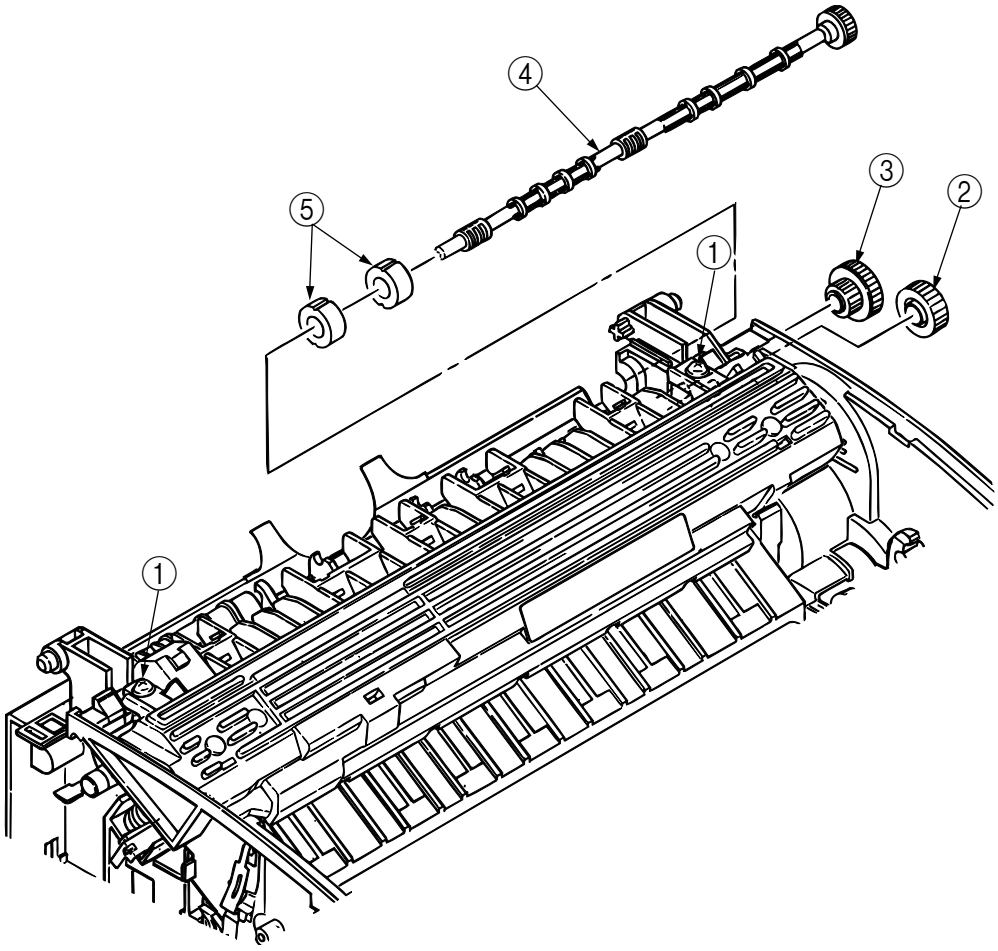
(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount top cover assy. (See Section 3.3.7.)mopqrs

(3) Remove two screws j from heat assy (Section3.3.10), lift the heat assy, and dismount idle gear E (A) k and idle gear E (B) l.

(4) Unlock and dismount drive shaft E (Eject) m.

(5) Dismount two eject rollers n.



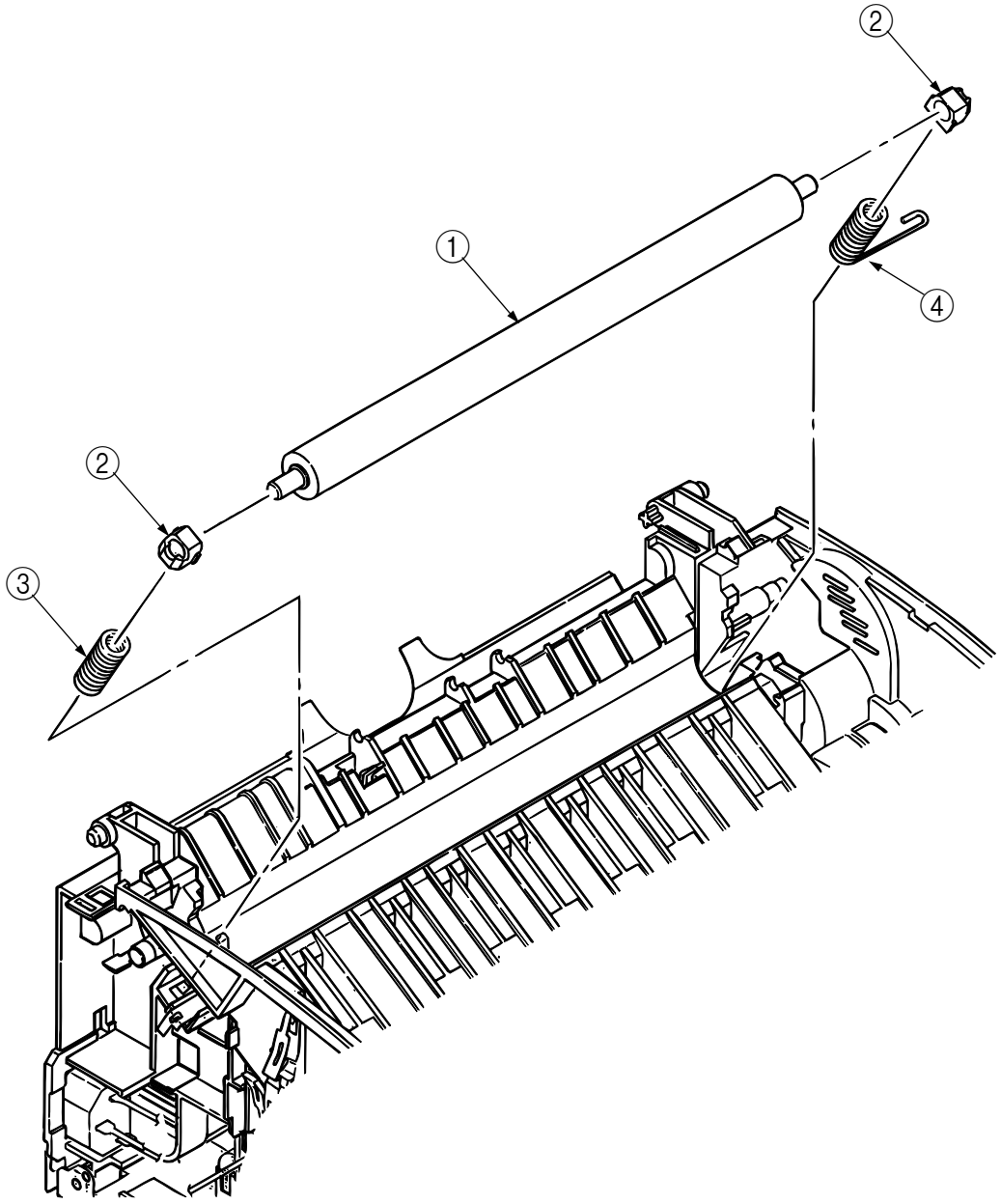
3.3.12 Pressure Roller B (Back Up Roller)

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the high-voltage power supply board (P2H). (See Section 3.3.6.)

(3) Dismount the heat assy. (See Section 3.3.10.)

(4) Dismount the engagement with the left ground, then pressure roller Bj. (Two bearing BUs k and two bias springs I also come off at the same time.)



3.3.13 Separator Guide

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the high-voltage power supply board (P2H). (See Section 3.3.6.)

(3) Remove four screws j.lmq

(4) Dismount inlet k from base frame l.

<Dismounting inlet k>

Insert a screwdriver into the hole on the side of base frame l, remove the inlet claw from base frame q, and dismount inlet k.

(5) Disconnect three cables m and connector ⑪ and dismount base frame l. Then, remove screw s.

<Disconnecting connector ⑪ ⑫ >

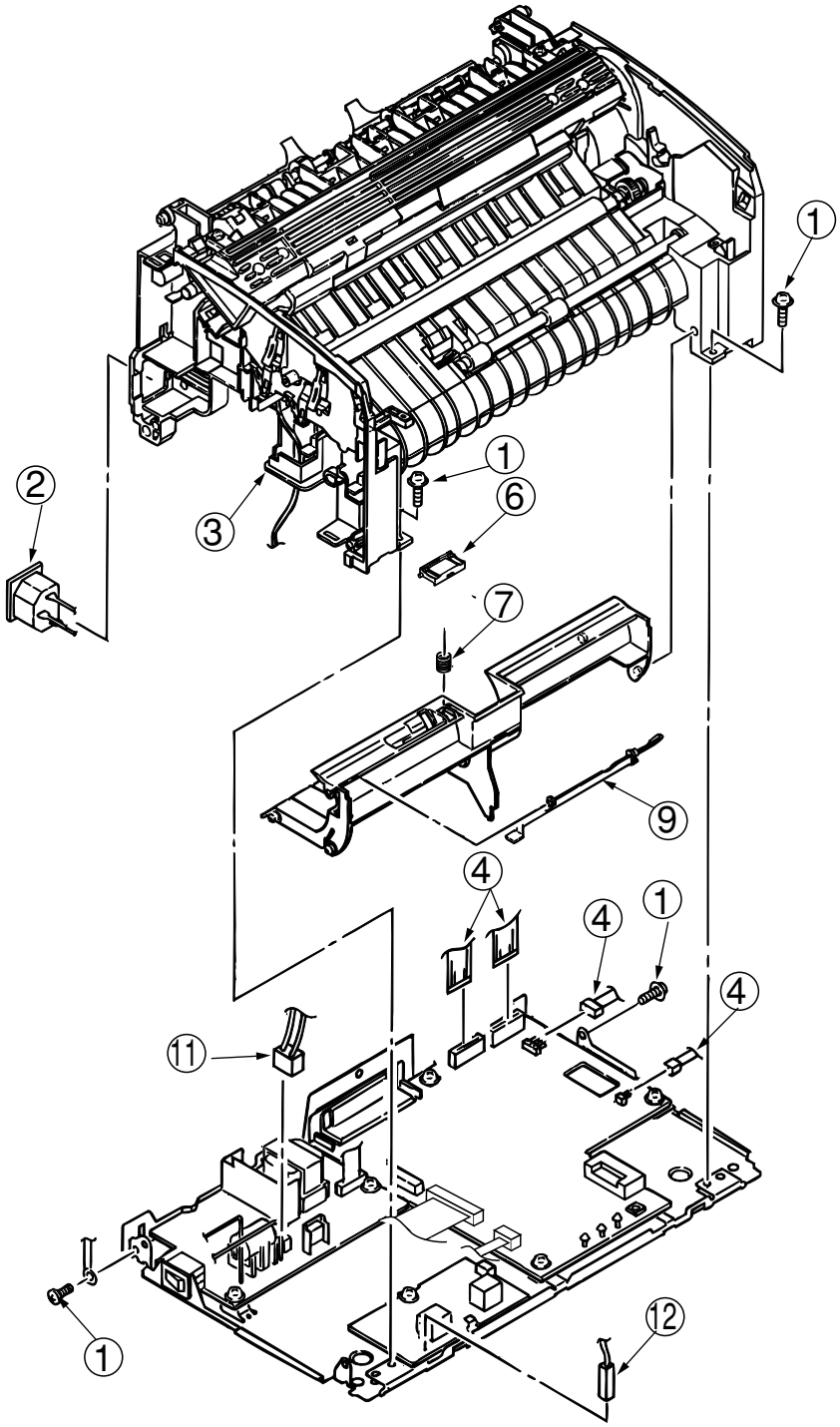
Dismount connector ⑪ by drawing it upward while pushing the clamp lever with a standard screwdriver.

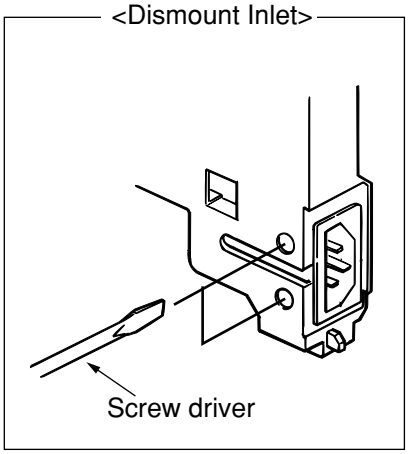
(6) Dismount the paper holder assy. (See Section 3.3.8.)

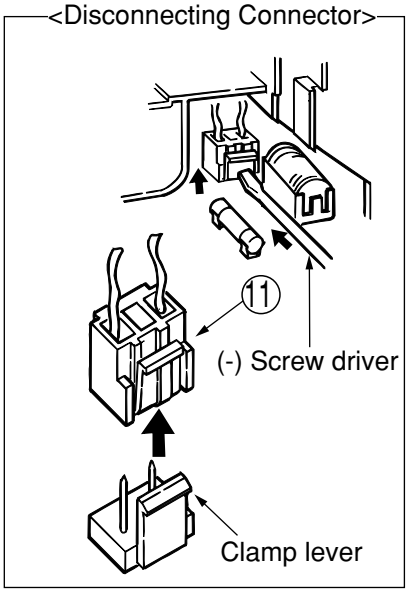
(7) Dismount two engagements and sheet guide n.

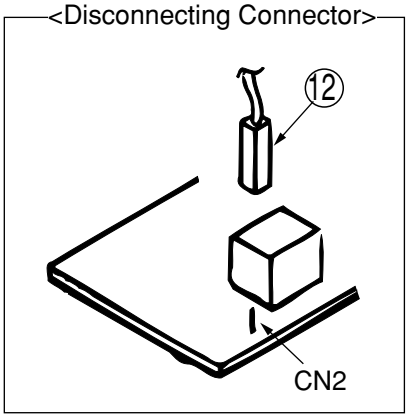
(8) Dismount separator assy o and compression spring Sp,

(9) Dismount paper sensor Er.









OKIPAGE 8p Plus

3.3.14 Pulse Motor (Main)

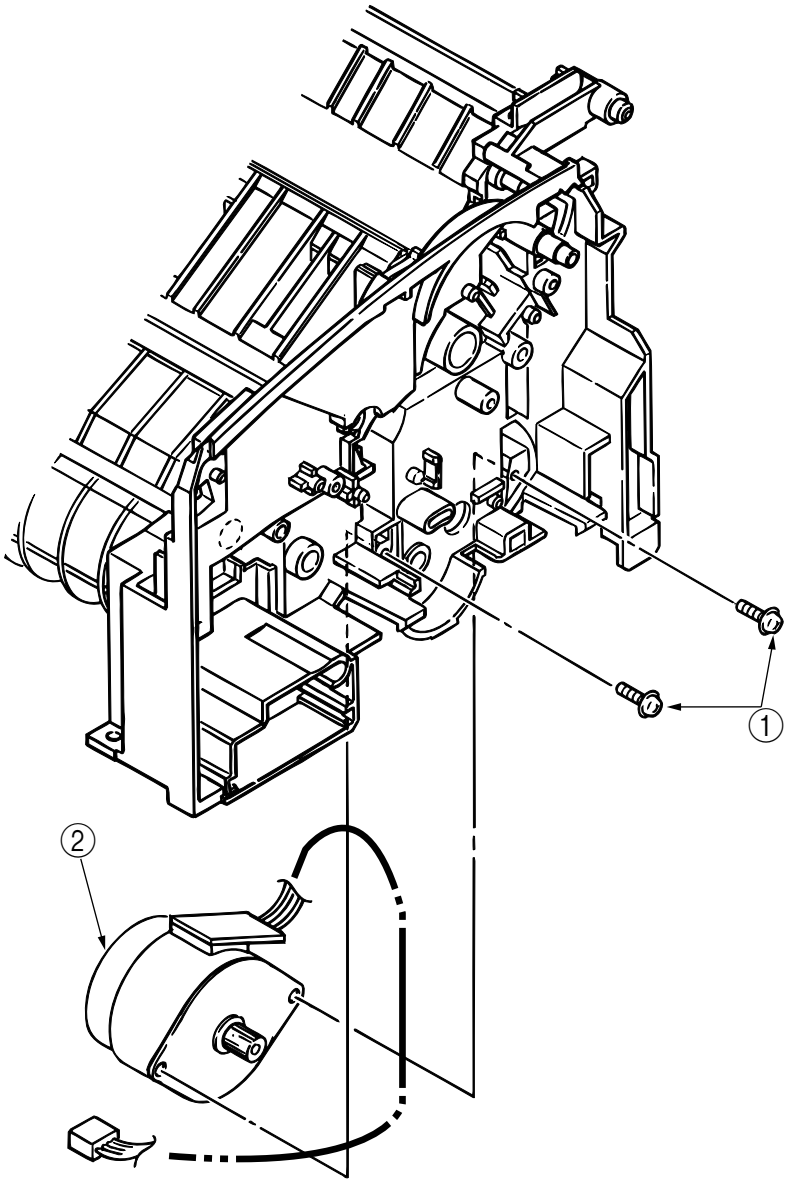
(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the high-voltage power supply board (P2H). (See Section 3.3.6.)

(3) Dismount side plate M. (See Section 3.3.9.)

(4) Dismount the base frame. (See Section 3.3.13.)

(5) Remove two screws j and dismount pulse motor (main) k.



3.3.15 Hopping Shaft Assy

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the high-voltage power supply board (P2H). (See Section 3.3.6.)

(3) Dismount the base plate assy. (See Section 3.3.13.)

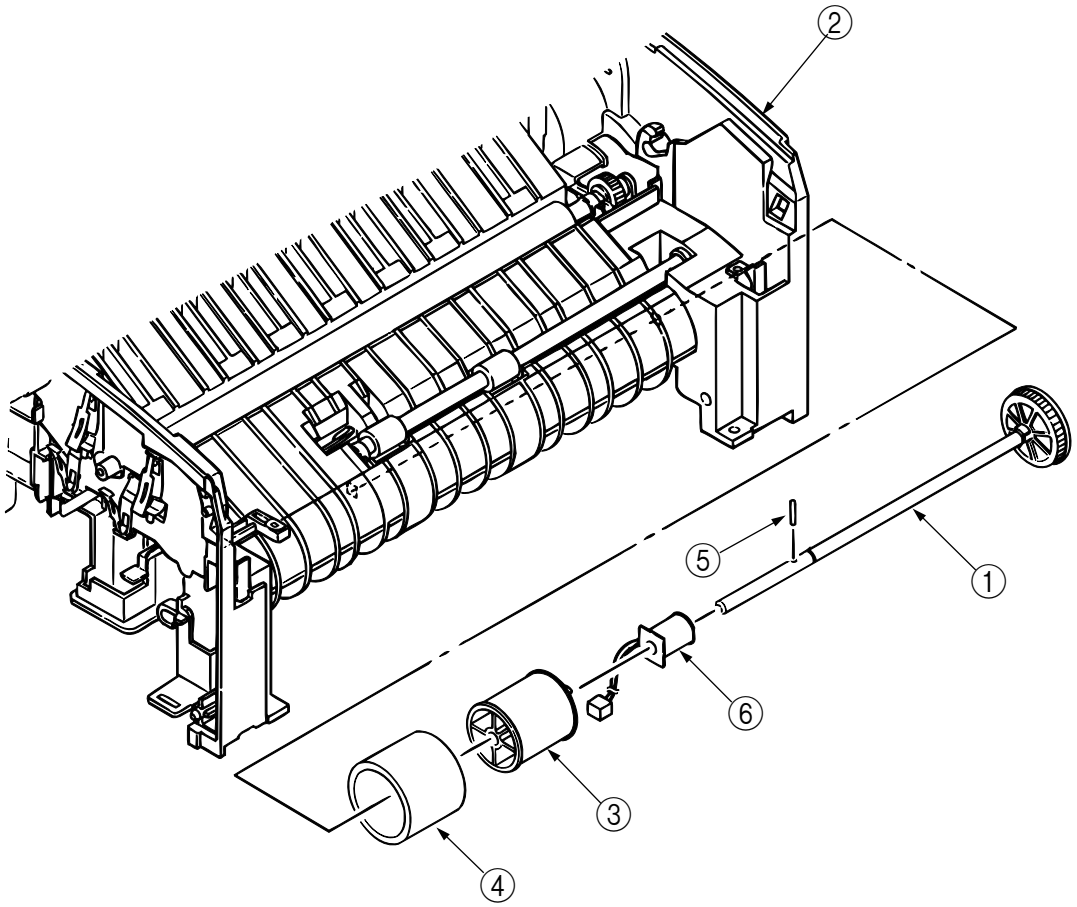
(4) Dismount the paper holder assy. (See Section 3.3.8.)

(5) Dismount the sheet guide. (See Section 3.3.13.)

(6) Dismount side plate M. (See Section 3.3.9.)

(7) Raise up roller holder l, slide hopping shaft assy j, and dismount roller holder l and hopping roller m. (Knock pin n also comes off at the same time. Take care not to lose it.)

(8) Draw out hopping shaft assy j to the right and dismount magnet Ho.

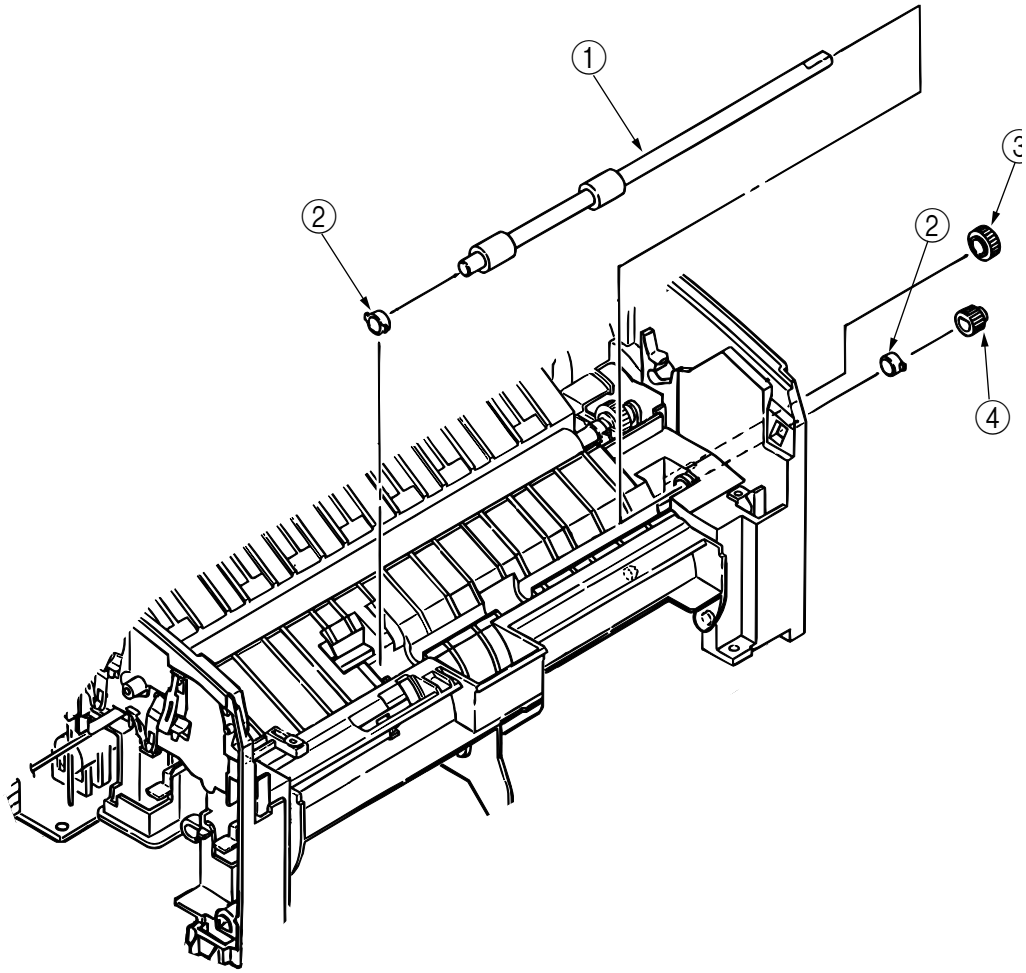


3.3.16 Regist Roller

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount Idle gear R l and Gear R m.

(3) Move regist roller j to the right and dismount it by lifting. (Two regist bearings k also come off at the same time. Take care not to lose them.)



3.3.17 Paper Sensor E, Paper Sensor Exit and Toner Sensor Assy

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the high-voltage power supply board (P2H). (See Section 3.3.6.)

(3) Dismount the base frame. (See Section 3.3.13.)

(4) Dismount the paper holder assy. (See Section 3.3.8.)

(5) Dismount the sheet guide. (See Section 3.3.13.)

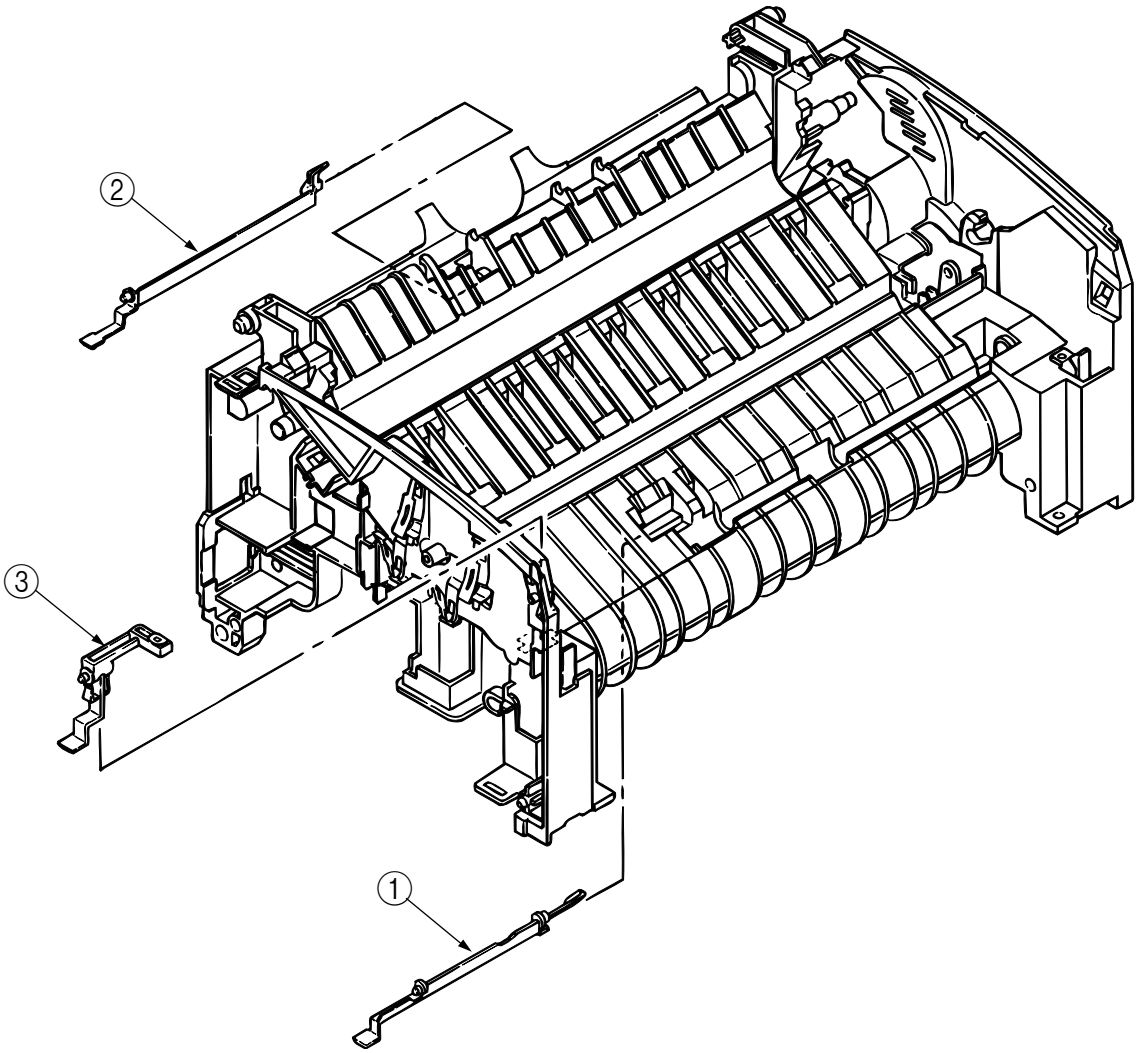
(6) Dismount the heat assy. (See Section 3.3.10.)

(7) Dismount drive shaft E. (See Section 3.3.11.)

(8) Dismount paper sensor Ej.

(9) Dismount paper sensor exit k.

(10) Dismount toner sensor assy l.



3.3.18 Base Plate

(1) Dismount the upper cover assy. (See Section 3.3.5.)

(2) Dismount the base frame. (See Section 3.3.13.)

(3) Remove two screws j, disconnect connector k, and dismount power supply unit l.

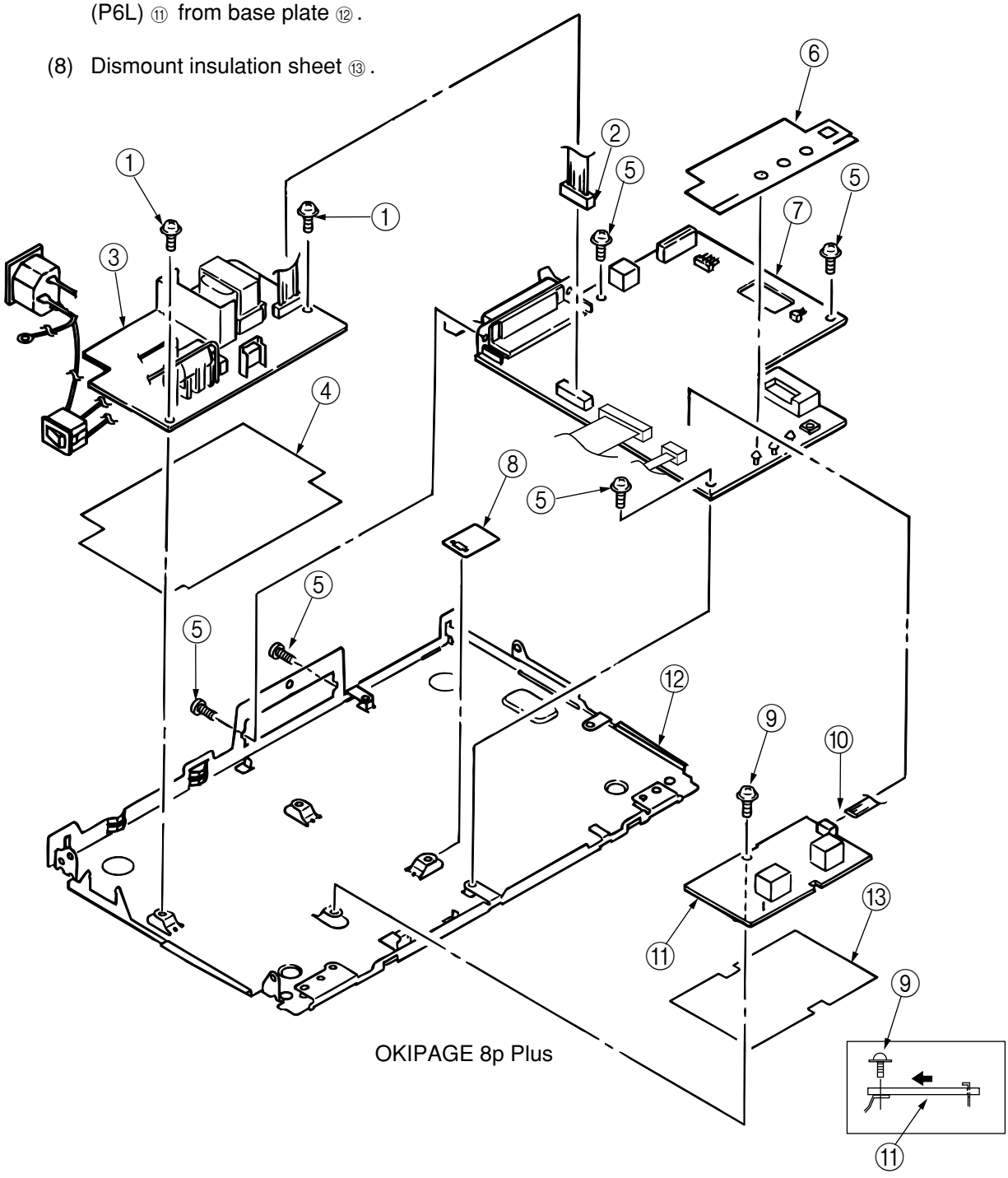
(4) Dismount insulation sheet m.

(5) Remove five screws n, dismount insulation sheet o and dismount main control board p.

(6) Dismount insulation sheet q.

(7) Remove screw r , disconnect connector s and dismount High Voltage Power Supply Board (P6L) ⑪ from base plate ⑫ .

(8) Dismount insulation sheet ⑬ .



OKIPAGE 8p Plus

4. ADJUSTMENT

This chapter explains adjustment necessary when a part is replaced.

This adjustment is made by changing the parameters values set in EEPROM on the main control board. The printer driver or maintenance utility can be used to change these values.

Only servicemen and maintenance personnel can use the maintenance utility. This utility cannot be made public for printer end users.

4.1 Adjustment Types and Functions

4.1.1 Printer Driver

(For Microsoft Windows)

This printer driver has the following functions:

- Drum counter reset
- Charge roller cleaning

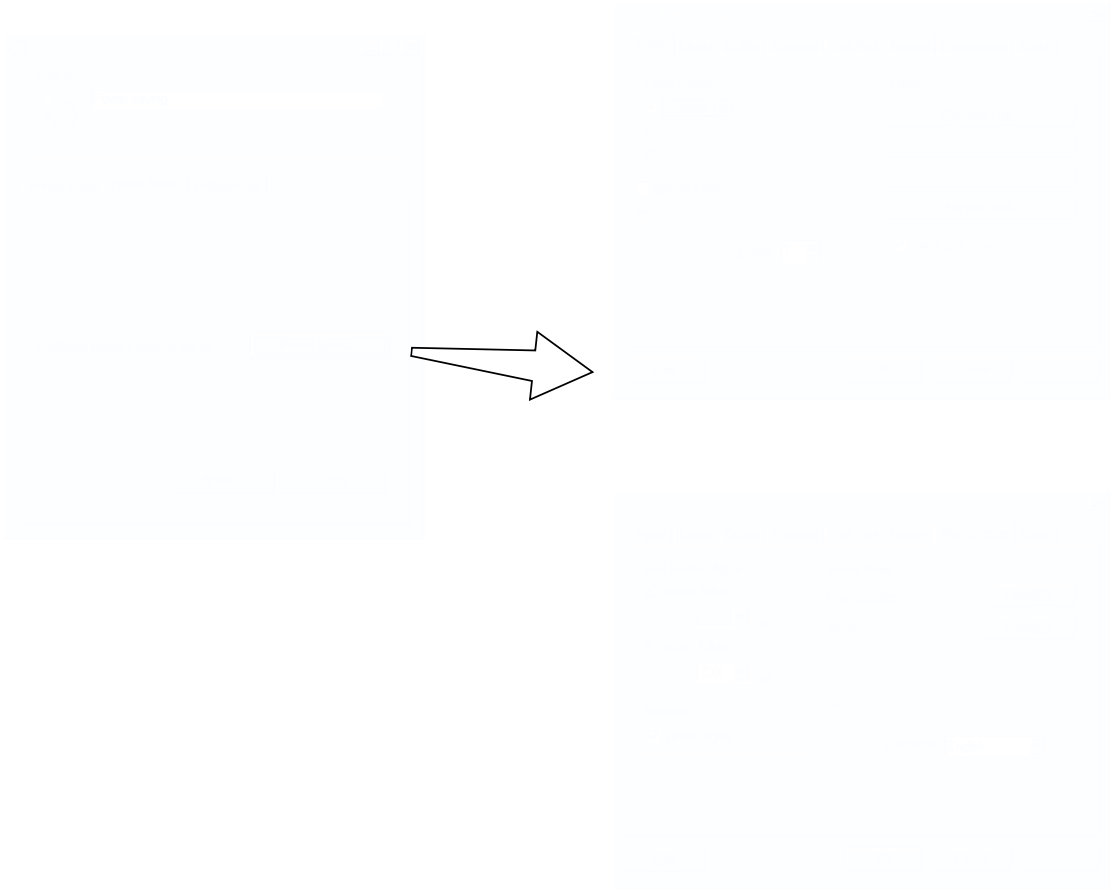


Figure 4-1

(1) Drum counter reset

This function resets the life of the drum counter when the EP unit is replaced. Clicking the "Reset" button resets the life.

(2) Charge roller cleaning

This function cleans the charge roller of the EP unit; it is used when printing is unclear. For details on how to operate this function, refer to "User's Manual."

4.1.2 Engine Maintenance Utility

See Appendix D.

4.2 Adjustment When Replacing a Part

The table below lists the parts that requires adjustment when they are replaced.

Part to be Replaced	Adjustment
LED head	Set the LED head drive time. Set the LED Head Width Set the LED Head Wire Set the Head type
EP unit	Reset the drum counter. (Refer to "User's Manual".)
Main control board	Upload or download EEPROM data.

4.2.1 Setting LED Head Drive Time

Caution: When the liminous intensity of a new LED head is the same as that of the old LED head, do not set the LED head drive time.

Use “LED Head Making No.” in the engine menu tab of the maintenance driver to set the luminous intensity displayed on the LED head as the LED head drive time. (See Figure 4-2.)

- Luminous intensity of LED head

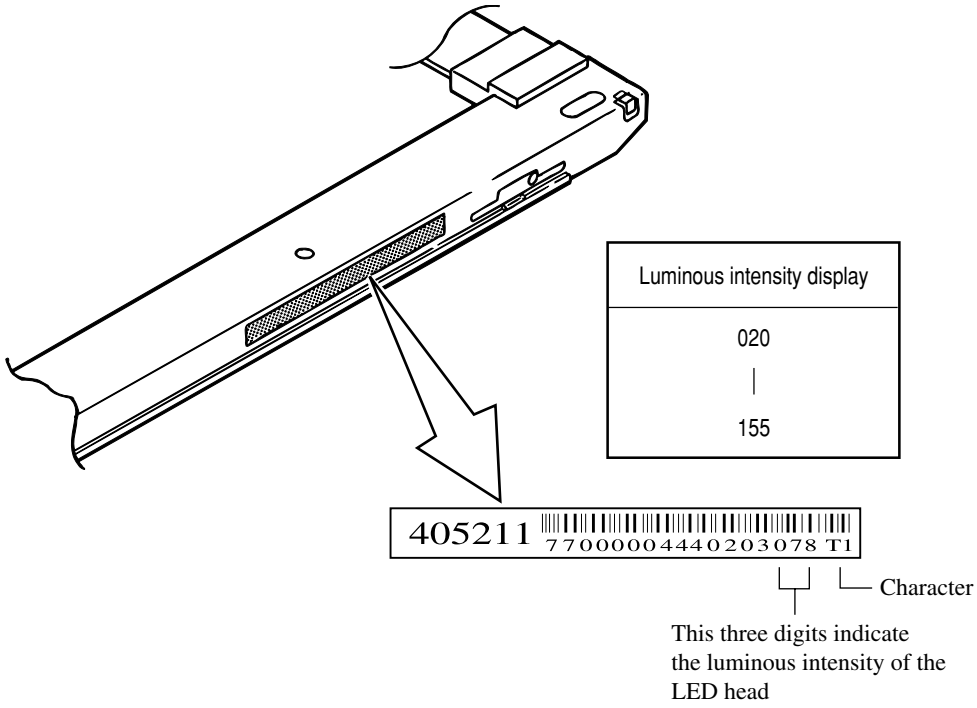


Figure 4-2

4.2.2 Uploading and Downloading EEPROM Data

When the main control board is replaced, EEPROM data must be reflected on a new main control board. Use “EEPROM Operations” in the option tab of the maintenance utility to reflect EEPROM data on the new main control board. (See Figure 4-4.)

Reflect EEPROM data on the new main control board in the following procedures:

(1) Check that the printer and PC are connected by the parallel I/F, then execute the maintenance utility.

(2) Click the "Option" button in "Main Menu Dialog".

(3) Click the “Upload” button (Upload EEPROM Data) in “EEPROM Operations.” (EEPROM data read is completed.)

(4) The read EEPROM data is displayed in “Dialog” of the maintenance driver.

(5) Leave the display of the maintenance driver as is and replace the main control board.

(6) Click the “Download” button (Download EEPROM Data) in “EEPROM Operations”. (EEPROM data write is completed.)

Depending on the level of a main control board failure (parallel I/O failure, etc.), however, EEPROM data may be unable to be uploaded.

In such a case, use the maintenance utility to perform the following adjustment after replacing the main control board:

- Setting the LED head drive time (Section 4.2.1)
- Setting the LED Head Width
- Setting the LED Head Wire
- Setting the Head type
- Setting specifications (ODA/OEL/INT-A/INT-L)

5. PERIODICAL MAINTENANCE

5.1 Periodical Replacement Parts

Table 5-1 lists the part and unit to be replaced periodically.

Table 5-1 Routine Replacement Parts

Part Name	Replacement Time	Part to be Checked Simultaneously	Remarks
Toner cartridge (Type 6)	When "Toner Low" is displayed.	LED head	Consumables
EP unit (Type 6)	When "Change Drum" is displayed.		Consumables

Caution: Also reset the drum counter when replacing the I/D unit.

5.2 Cleaning

Remove any toner or dirt and clean the circumference and inside of the printer with a waste cloth.

Caution: Do not touch the OPC drum, LED lens array, and connector block of the LED head.

5.2.1 Cleaning the LED Lens Array

When a white belt or a white stripe (void, light printing) occurs in the vertical direction of the print surface, clean the LED lens array or replace the toner cartridge.

Caution: Be sure to use an LED head cleaner to clean the LED lens array.

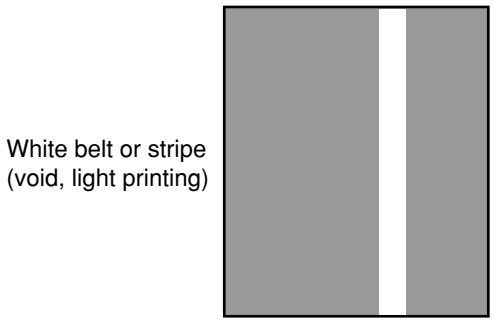


Figure 5-1

(1) Set the LED head cleaner in the LED lens array, as shown in the figure below, and slide the cleaner left and right several time to clean the head.

Caution: Do not press the LED head cleaner against the LED lens array.

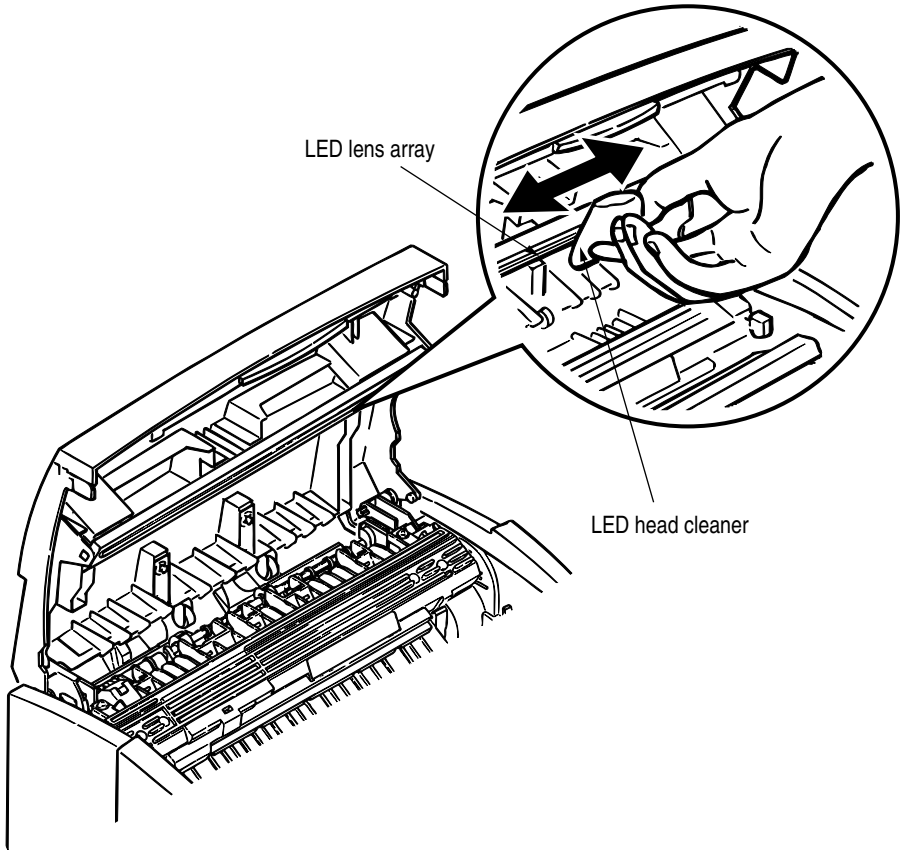


Figure 5-2

6. TROUBLESHOOTING PROCEDURES

6.1 Troubleshooting Tips

(1) Check the basic check points written in the user's manual.

(2) Gather detailed failure information as much as possible from the customer.

(3) Check the printer under the condition close to that under which the failure occurred.

6.2 Check Points Before Correcting Image Problems

(1) Is the printer running in proper ambient conditions?

(2) Are consumables (toner and EP unit) replaced correctly?

(3) Are sheets of paper normal?

(4) Is the EP unit set correctly?

6.3 Notes When Correcting Image Problems

(1) Do not touch the surface of the OPC drum nor place foreign matter on it.

(2) Do not expose the OPC drum to direct sunlight.

(3) Do not touch the fuser because it heats up during operation.

(4) Do not expose the image drum to light for more than five minutes at room temperature.

6.4 Preparation Before Troubleshooting

(1) Message display

The failure status of the OKIPAGE 8p Plus is displayed on the status monitor of the PC.

Take proper action according to the message displayed on the status monitor.

(2) LED display

The OKIPAGE 8p Plus is equipped with three LED's and have five status:

(1) Light on

(2) Light off

(3) Flash 1 repeats 2-second Light on and 2-second Light off (Slow blink)

(4) Flash 2 repeats 500ms Light on and 500ms Light off. (Blink)

(5) Flash 3 repeats 120ms Light on and 120ms Light off. (Fast blink)

6.5 Troubleshooting

OKIPAGE 8p Plus

Status	Error (red)	Manual Feed (amber)	Ready (amber)	Remark
Ready	Undefined	OFF	ON	
During suspending data processing (in OFF-LINE) (Data is left in the buffer)	Undefined	OFF	Flash 1	Printing contents of buffer by pressing switch two seconds. Clearing buffer by pressing switch five seconds.
During receiving data or processing data	Undefined	OFF	Flash 2	
Manual request	OFF	Flash 2	Undefined	
Low toner	Flash 1	OFF	Undefined	
Warning Toner low, toner sensor (total page > 30 sheets)	Flash 1	Undefined	Undefined	
Warning Change drum	Flash 3	Undefined	Undefined	Replace drum unit and power on while cover open and pressing switch
During resetting drum counter	Flash 2, 2 times	Flash 2, 2 times	Flash 2, 2 times	Recovered by pressing and releasing a switch
Error (printing Error) Buffer Overflow, Print Overrun	Flash 2	OFF	OFF	Recovered by pressing and releasing a swith and the printing can be continued.
Error Paper out, Input Jam	Flash 2	OFF	OFF	The printing can be continued by cover open/close or by presssing the switch
Error Paper Jam (Paper Size Check Error, Feed Jam, Exit Jam)	Flash 2	OFF	OFF	
Error Cover Open	Flash 2	OFF	OFF	
Program error (Watch Dog Timer Error, Controller Error)	Flash 2	Flash 2	Flash 2	Re-power on
Hardware error (fatal error) (ROM/RAM error, fuser error, thermister error and toner sensor error)(total page < 30)	Flash 3	Flash 3	Flash 3	Service call even if the printer cannot recover from one of these errors.
During printer resetting.	OFF	OFF	Flash 2	
During initializing.	ON and then OFF	ON and then OFF	ON and then OFF	
During initializing EEPROM	Flash 2, 3 times	Flash 2, 3 times	Flash 2, 3 times	

Flash 1: Slow blinking
Flash 2: Blinking
Flash 3: Fast blinking

If a trouble occurs in the OKIPAGE 8p Plus, troubleshoot according to the following procedures:

6.5.1 Status Monitor Message List

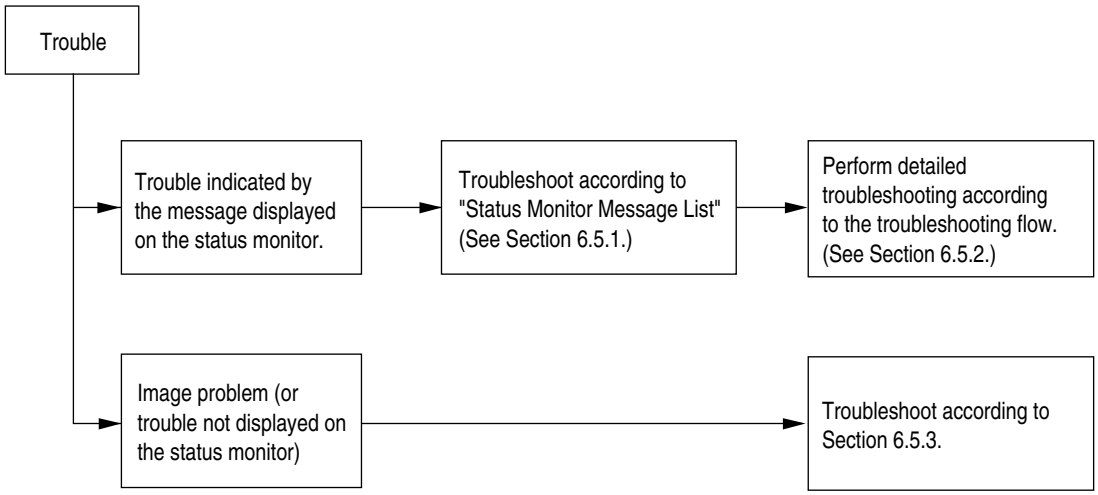

Trouble
Trouble indicated by the message displayed on the status monitor.
Troubleshoot according to "Status Monitor Message List" (See Section 6.5.1.)
Perform detailed troubleshooting according to the troubleshooting flow. (See Section 6.5.2.)
Image problem (or trouble not displayed on the status monitor)
Troubleshoot according to Section 6.5.3.

Table 6-1 lists the statuses and troubles to be displayed on the status monitor in the message format.

Table 6-1

Category	Status Message	OP8p Plus PJL Code	Display Content	Remedy
Normal status	Warming Up	10003	Warming-up status	Normal operation
	Online (Ready)	10001	Online (ready) status	Normal operation
	Power Save Mode	10094	Power save status	Normal operation
	Toner Low	10006	The toner amount of the toner cartridge is small.	Normal operation
	Toner Sensor	10093	The I/D unit is not installed or the toner sensor is faulty.	Install the I/D Unit or replace the toner sensor.
	Change Drum	40093	Life of I/D drum	Change the I/D Unit
	Manual Paper In	10097	The paper is in the manual feed mode.	Replace the I/D unit. (***Note:*** Be sure to reset the drum counter after replacing the I/D unit.)
	Printing In Progress	10098	Printing in progress X=0, Non Warning X=1, Toner Low X=2, 3 Change Drum	Normal operation
	Ejection In Progress	10099	Ejection in progress X=0, Non Warning X=1, Toner Low X=2, 3 Change Drum	Normal operation
	Manual Request Executive Letter Legal 14 Legal 13 A6 A5 A4 B5 Monarch COM-10 DL C5 COM-9	411xx	Request the paper to be set in the manual feed mode. The paper sizes are as follows: Executive, Letter, Legal 14, Legal 13, A4, A5, A6, B5, Monarch, DL, C5, COM-10, COM-9	Set the requested paper in the manual feed mode.

Table 6-1 (Cont'd)

Category	Status Message	OP8p Plus PJL Code	Display Content	Remedy
Paper size error	Paper Size Error	30034	Paper of improper size was fed. 2.52" (64 mm) L 15.77" (400.56 mm)	Check the paper. Also check whether more than one sheet of paper were fed simultaneously. To release the error display, open the cover, then close it. If this error occurs frequently, see Section 6.5.2 3.
Paper jam	Paper Input Jam	40077	A paper jam occurred when sheets of paper were being supplied.	Check the paper. To release the error display, close the cover, then close it. If this error occurs frequently, see Section 6.5.2 2-1.
	Paper Feed Jam	40078	A paper jam occurred during paper feeding.	Open the cover, then remove the jammed paper. To release the error display, close the cover. If this error occurs frequently, see Section 6.5.2 2-2.
	Paper Exit Jam	40079	A paper jam occurred during paper ejection.	Open the cover, then remove the jammed paper. To release the error display, close the cover. If this error occurs frequently, see Section 6.5.2 2-3.
	ID Not Installed	40019		Installed I/D Unit
Cover open	Cover Open	40021	The upper cover is open.	To release the error display, close the cover. If this error occurs frequently, replace the power supply board.
Buffer overflow	Page Buffer Overflow	30097	The page buffer overflowed because there are a large number of print data.	To release the error display, press the reset button on the status motor of the printer driver. Install RAM or reduce the number of print data.
	Print Over Run	30017	A print overrun occurred because print data is complicated.	To release the error display, press the reset button on the status motor of the printer driver. Simplify the print data format.
Device configuration error	Program ROM Check Error		An error occurred during program ROM check.	Replace program ROM or the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.4.)
	Resident RAM Check Error		An error occurred during resident RAM check.	Replace the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.4.)

Table 6-1 (Cont'd)

Category	Status Message	OP8p Plus PJL Code	Display Content	Remedy
Device configuration error	EEPROM Check Error		An error occurred during EEPROM check.	Replace the main control board. (When replacing the main control board, also adjust EEPROM data.) (See Section 4.2.4.)
	Option RAM Check Error		An error occurred during option RAM check.	Check the connection of the Option RAM PC board. If the option RAM PC board is faulty, replace it.
	Fuser Error	40084	A heater timeout error occurred.	See Section 6.5.2 4.
	Thermister Open Check Error	40085	The thermistor is open.	Replace the heater Assy.
	Thermister Short Check Error	40086	A thermistor short occurred.	Replace the heater Assy.
	Watch Dog Timeout Error		A watchdog timeout occurred.	To release the error display, turn on the power supply again. Replace the main control board.
	Motor Timeout Error		A motor timeout occurred.	To release the error display, turn on the power supply again. Replace the main control board.

6.5.2 Status Message Troubleshooting

Some failures cannot be corrected according to the status message trouble list. Troubleshoot these failures according to the following troubleshooting flowcharts:

No.	Item	Flowchart No.
1.	The OKIPAGE 8p Plus malfunctions after the power supply has been turned on.	①
2.	Jam error	
	├ Paper input jam	②-1
	├ Paper feed jam	②-2
	└ Paper exit jam	②-3
3.	Paper size error	③
4.	Fusing error	④

Caution: When replacing the main control board troubleshooted according to the troubleshooting flowcharts, also adjust EEPROM data. (See Section 4.2.4.)

① The OKIPAGE 8p Plus malfunctions after the power supply has been turned on.

• Turn the power supply off, then on again.

• Is the LED lamp on?

• No Is the AC cable connected correctly?

• No Connect the AC cable correctly.

• Yes Is +5 V supplied between CN1 Pin 7 and CN1 Pin 13 of the high-voltage power supply board (P2H)?
(Pin 7: +5 V, Pin 13: 0 V)

• No Are the CN1 connectors of the high-voltage power supply board (P2H) and main control board connected correctly?

• No Connect the CN1 connectors correctly.

• Yes Is +5 V supplied between CN2 Pin 2 and CN2(POWER) Pin 3 of the main control board?
(Pin 2: +5 V, Pin 3: 0 V)

• No Replace the high-voltage power supply board(P2H).

• Yes Replace the main control board.

• Yes Replace the high-voltage power supply board(P2H).

• Yes Replace the main control board.

[JAM error]

②-1 Paper input jam

- Does a paper input jam occur when the power supply is turned on?
  - Yes — Is the jammed paper on paper sensor?
    - Yes — Remove the jammed paper.
  - No — Is paper sensor (manual feed/paper) operating normally?
    - No — Replace paper sensor (manual feed or paper).
  - Yes — Replace the high-voltage power supply board(P2H).
- No — Does a paper input jam occur during paper loading?
  - Yes — Is the paper already fed to paper sensor (manual feed)?
    - Yes — Is paper sensor (manual feed) operating normally?
      - No — Replace paper sensor (manual feed).
    - Yes — Check the gear block or replace high-voltage power supply board(P2H).
  - No — Is the paper already fed to paper sensor (paper)?
    - Yes — Is paper sensor (paper) operating normally?
      - No — Replace paper sensor (paper).
    - Yes — Replace high-voltage power supply board(P2H).
  - No — Replace the stepping roller or friction pad.
- No — Is the hopping roller rotating?
  - Yes — Check the coil resistance of magnet H. Is the resistance normal (about 120 Ω)?
    - No — Replace magnet H.
  - Yes — Is +26 V supplied between Pin 1 and Pin 2 of the main control board?
    - No — Replace the main control board.
  - No — Check the gear block or replace the hopping shaft assy.
- No — Is the MOTOR connector of the pulse motor (main) and main control board connected?
  - No — Connect the MOTOR connectors correctly.
- Yes — Measure the resistance of the pulse motor (main). Is the resistance normal (about 3.8 Ω)?
  - No — Replace the pulse motor (main).
- Yes — Replace the main control board.

[JAM error]

②-2 Paper feed jam

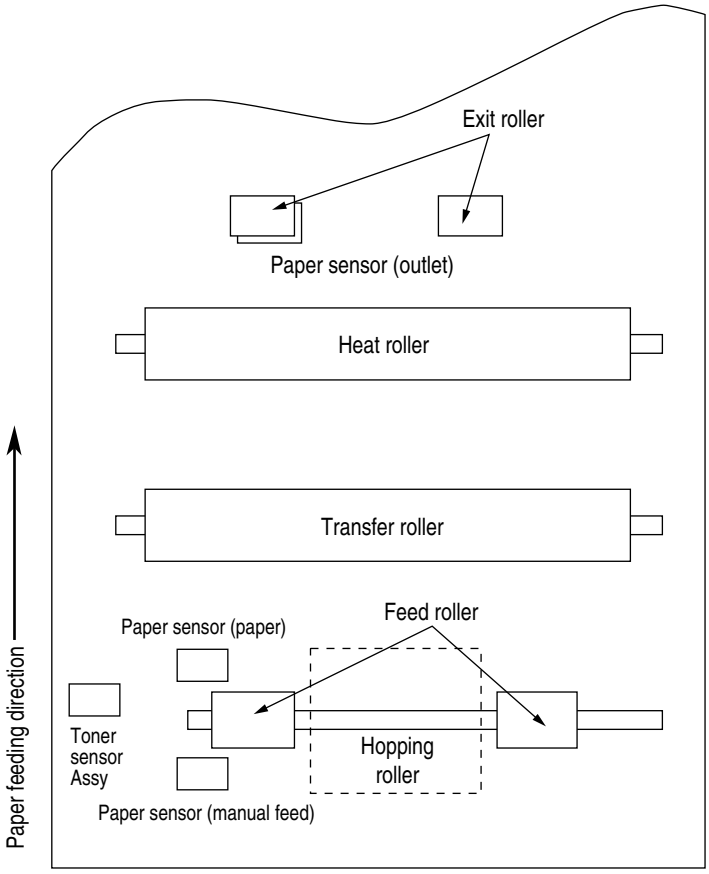
- Does a paper feed jam occur when the power supply is turned on?
  - Yes — Is the jammed paper on paper sensor (paper/outlet)?
    - • Yes — Remove the jammed paper.
  - No — Is paper sensor (outlet/paper) operating normally?
    - • No — Replace paper sensor (outlet or paper).
  - Yes — Replace the high-voltage power supply board(P2H).
- No — Has the paper arrived at paper sensor (paper)?
  - No — Is the feed roller rotating?
    - • No — Check the gear block.
  - Yes — Is the I/D unit set correctly?
    - • No — Set the I/D unit correctly.
  - Yes — Check the gear block.
- Yes — Has the paper arrived at the paper sensor (outlet)?
  - Yes — Is the paper sensor (outlet) operating normally?
    - • No — Replace the paper sensor (outlet).
  - Yes — Replace the high-voltage power supply board(P2H).
- No — Check the gear block.

②-3 Paper exit jam

- Does a paper exit jam occur when the power supply is turned on?
  - Yes — Is the jammed paper on the paper sensor (outlet)?
    - • Yes — Remove the jammed paper.
  - No — Is the paper sensor (outlet) operating normally?
    - • No — Replace the paper sensor (outlet).
  - Yes — Replace the high-voltage power supply board(P2H).
- No — Check the gear block or replace the eject roller.

③ Paper size error

- Is the paper of the specified size being use?
  - • No Use paper of the specified size.
- Yes Is paper sensor (paper) operating normally?
  - • No Replace paper sensor (paper) or clean the inlet sensor on the high-voltage power supply board(P2H).
- Yes Is the paper sensor (outlet) operating normally?
  - • No Replace the paper sensor (outlet) or clean the outlet sensor on the high-voltage power supply board(P2H).
- Yes Replace the high-voltage power supply board(P2H).



④ Heat assy error

- Turn the power supply off, then on again.
- Does the Halogen lamp of the heat assy go on?
  - No — Is the Halogen lamp or thermostat disconnected?
    - Yes — Replace the heat assy.
    - No — Replace the power supply unit.
  - Yes — Is the POWER connector of the main control board and the power supply unit connected correctly?
    - No — Connect the POWER connectors correctly.
    - Yes — Replace the main control board.

6.5.3 Image Troubleshooting

This section explains how to troubleshoot when an image problem is output as a result of the printing.

Figure 6-3 is an example of image problem output.

Symptom	Flowchart No.
An image is light or blurred entirely. (Figure 6-3, Ⓐ)	①
Dark background density (Figure 6-3, Ⓑ)	②
A blank paper is output. (Figure 6-3, Ⓒ)	③
Vertical block belt/black stripe (Figure 6-3, Ⓓ)	④
Cyclical defect (Figure 6-3, Ⓔ)	⑤
Print void	⑥
Poor fusing (An image is blurred or peeled off when it is touched.)	⑦
Vertical white belt/white stripe (Figure 6-3, Ⓕ)	⑧

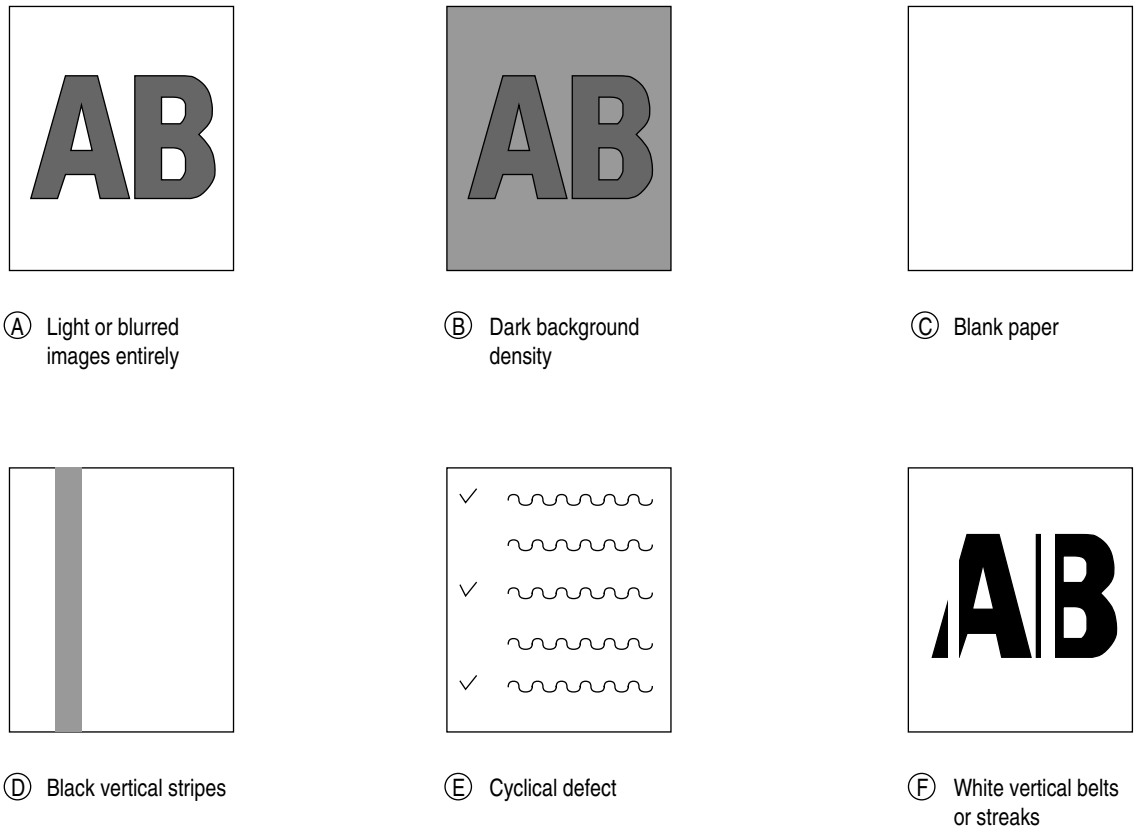


Figure 6-3 Image Problems

① An image is light or blurred entirely.

• Is the toner low? (Is "Toner Low" being displayed?)

• Yes Supply a toner.

• No Is the specified paper being used?

• No Use the specified paper.

• Yes Is the lens of the LED head dirty?

• Yes Clean the LED head.

• No Is the LED head installed correctly?
Check the HEAD1, HEAD2 connector of the main control board.

• No Install the LED head correctly.

• Yes Is the contact plate of the transfer roller in correct contact with the high-voltage power supply board(P2H)? (See Figure 6-4 Ⓕ.)

• Yes Is the terminal of the I/D unit in correct contact with the contact plate? (See Figure 6-4 Ⓐ and Ⓑ)?

• No Contact the terminal correctly.

• Yes Replace the transfer roller.

• Has this error been recovered?

• Yes End

• No Replace the I/D unit.

• Has this error been recovered?

• Yes End

Caution: After replacing the I/D unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

• No Replace the main control board, high-voltage power supply board(P6L) or high-voltage power supply board(P2H).

② Dark background density

• Has the OPC drum being exposed to external light?

• Yes Set the OPC drum in the OKIPAGE 8p Plus and wait for about 30 minutes.

• No Is the heat roller of the heat assy dirty?

• Yes Clean the heat roller.

• No Is the terminal of the I/D unit in correct contact with the contact plate? (See Figure 6-4 Ⓓ and Figure 6-5 Ⓓ.)

• No Contact the terminal correctly.

• Yes Replace the I/D unit.

• Has this error been recovered?

• Yes End

Caution: After replacing the I/D unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

• No Replace the main control board, high-voltage power supply board(P2H) or high-voltage power supply board(P6L).

③ A blank paper is output.

• Is the LED head connected correctly.
Check the HEAD1, HEAD2 connector of the main control board.

• No Connect the LED head correctly.

• Yes Is the terminal of the I/D unit in correct contact with the contact plate? (See Figure 6-5 Ⓔ.)

• No Contact the terminal correctly.

• Yes Replace the LED head.

• Has this error been recovered?

• Yes End

Caution: Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

• No Replace the main control board, high-voltage power supply board(P2H) or high-voltage power supply board(P6L).

④ Vertical black belt/stripe

• Replace the I/D unit.

• Has this error been recovered?

• Yes End

Caution: After replacing the I/D unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

No Replace the LED head.

• Has this error been recovered?

• Yes End

Caution: Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

No Replace the main control board, high-voltage power supply board(P2H) or high-voltage power supply board(P6L).

⑤ Cyclic defect

	Cycle	Remedy
EP drum	1.98" (50.3 mm)	Clean or replace the I/D unit.
Developing roller	1.44" (36.6 mm)	Replace the I/D unit.
Toner supply roller	2.63" (66.8 mm)	Replace the I/D unit.
Charge roller	0.81" (20.6 mm)	Replace the I/D unit.
Cleaning roller	0.81" (20.6 mm)	Replace the I/D unit.
Transfer roller	1.71" (43.4 mm)	Replace the I/D unit.
Heat roller	2.46" (62.5 mm)	Replace the heater Assy.
Pressure roller B	2.35" (59.7 mm)	Replace pressure roller B.

Caution: After replacing the I/D unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

⑥ A blank paper is output.

• Is the contact plate of the transfer roller in correct contact with the high-voltage power supply board?

  • No Contact the contact plate of the transfer roller correctly.

• Yes Replace the transfer roller.

• Has this error been recovered?

  • Yes End

• No Is the terminal of the I/D unit in correct contact with the contact plate? (See Figure 6-4 ⒶⒷⒸⒺ and Figure 6-5 ⒶⒷⒸⒹⒺ.)

  • No Contact the terminal of the I/D unit correctly.

• Yes Replace the I/D unit.

• Has this error been recovered?

  • Yes End

    Caution: After replacing the I/D unit, reset he drum counter. (Refer to "Rplacing the Drum Cartridge" in "Users Manual".)

• No Is the LED head installed correctly?
  Check the HEAD1, HEAD2 connector of the main control board.

  • No Contact the LED head correctly.

• Yes Replace the LED head

• Has this error been recovered?

• Yes End

  Caution: Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

• No Replace the main control board, high-voltage power supply board(P2H) or high-voltage power supply board(P6L).

⑦ Poor fusing

- Is the specified paper being used?
  - No — Use the specified paper. (xerox 4200 (20 lbs))
- Yes — Is the bias spring normal? (Tension: 3.25 kg)
  - No — Replace the bias spring.
- Yes — Are the heater connector of the heat assy and the CN1 connector of the power supply unit connected correctly.
  - No — Connect the connectors correctly.
- Yes — Replace the heat assy.
- Has this error been recovered?
  - Yes — End
- No — Replace the main control board or high-voltage power supply board(P2H).

⑧ Vertical white belt/stripe

• Is the lens of the LED head dirty?

• Yes Clean the LED head.

• No Is the contact plate of the transfer roller in correct contact with the high-voltage power supply board(P2H)? (See Figure 6-4 Ⓔ.)

• No Contact the contact plate of the transfer roller correctly.

• Yes Replace the transfer roller.

• Has this error been recovered?

• Yes End

• No Is the LED head installed correctly?
Check the HEAD1, HEAD2 connector of the main control board.

• No Install the LED head correctly.

• Yes Replace the LED head.

• Has this error been recovered?

• Yes End

Caution: Set the LED head drive time when replacing the LED head. (See Section 4.2.1.)

• Yes Replace the EP unit.

• Has this error been recovered?

• Yes End

Caution: After replacing the I/D unit, reset the drum counter. (Refer to "Replacing the Drum Cartridge" in "User's Manual".)

• No Replace the main control board, high-voltage power supply board(P2H) or high-voltage power supply board(P6L).

Contents

Ⓐ: Toner Supply Roller
Ⓑ: Developing Roller
Ⓒ: Charge Roller
Ⓓ: Cleaning Roller
Ⓔ: Transfer Roller
Ⓕ: Heat Roller

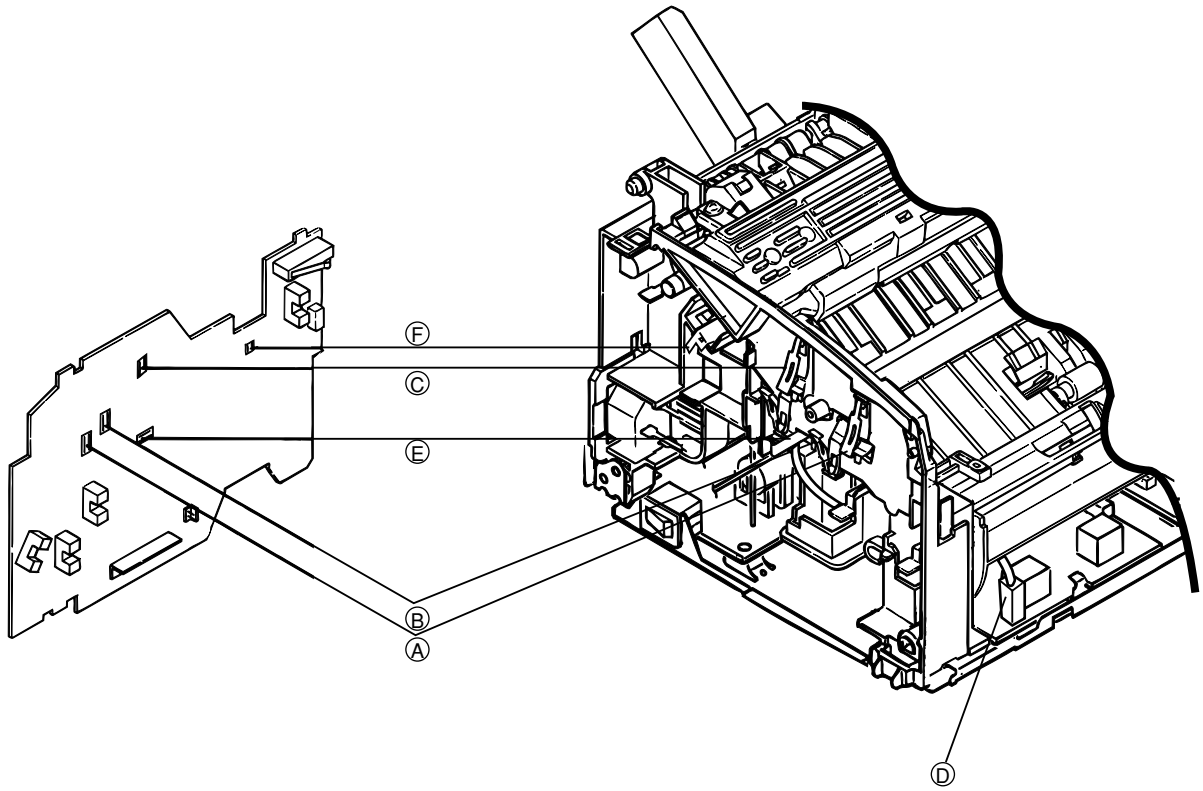


Figure 6-4

Contents

Ⓐ: Toner Supply Roller
Ⓑ: Developing Roller
Ⓒ: Charge Roller
Ⓓ: Cleaning Roller
Ⓔ: Ground (Drum)

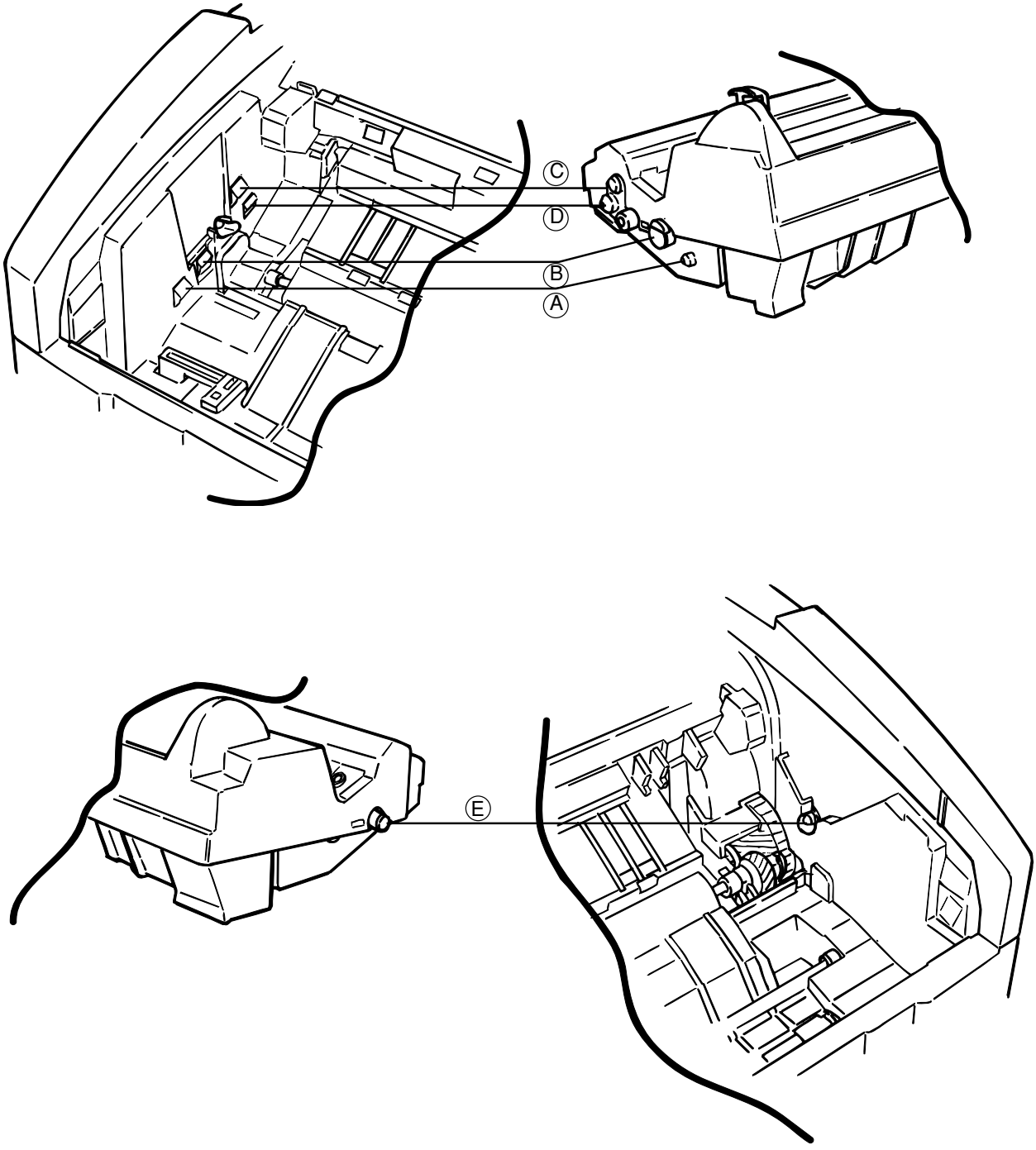
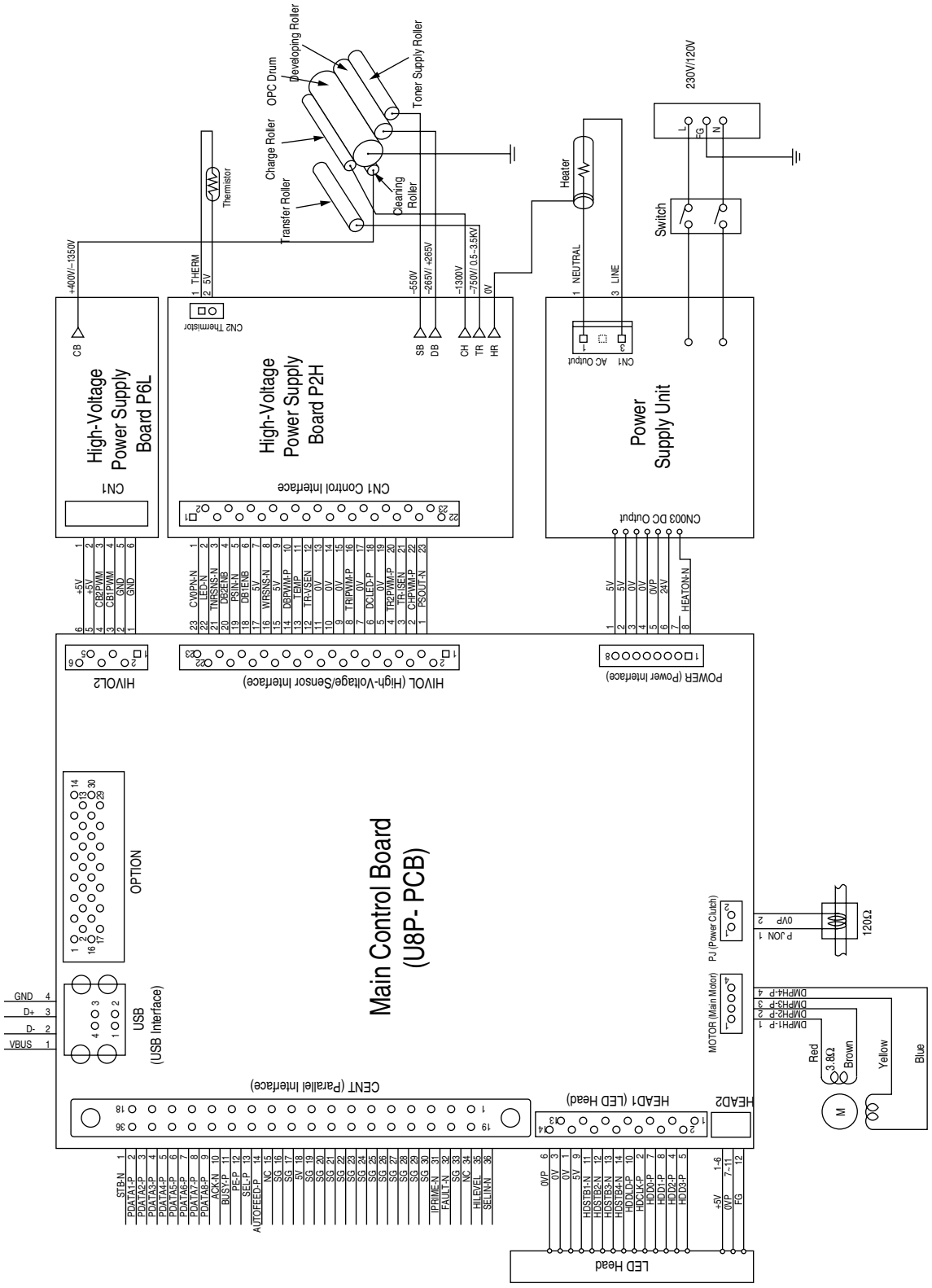


Figure 6-5

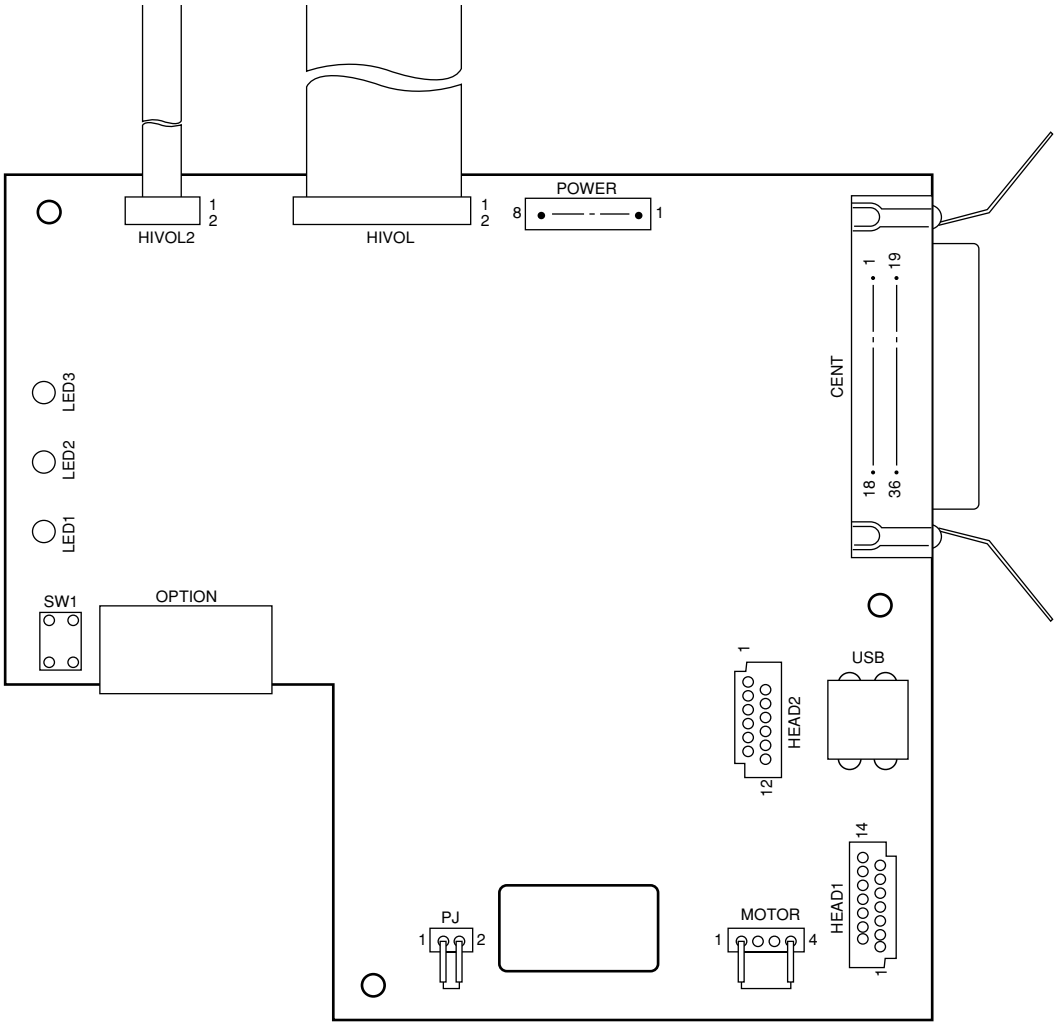
7. WIRING DIAGRAM

7.1 (a)Interconnect Signal Diagram (OKIPAGE 8p Plus)



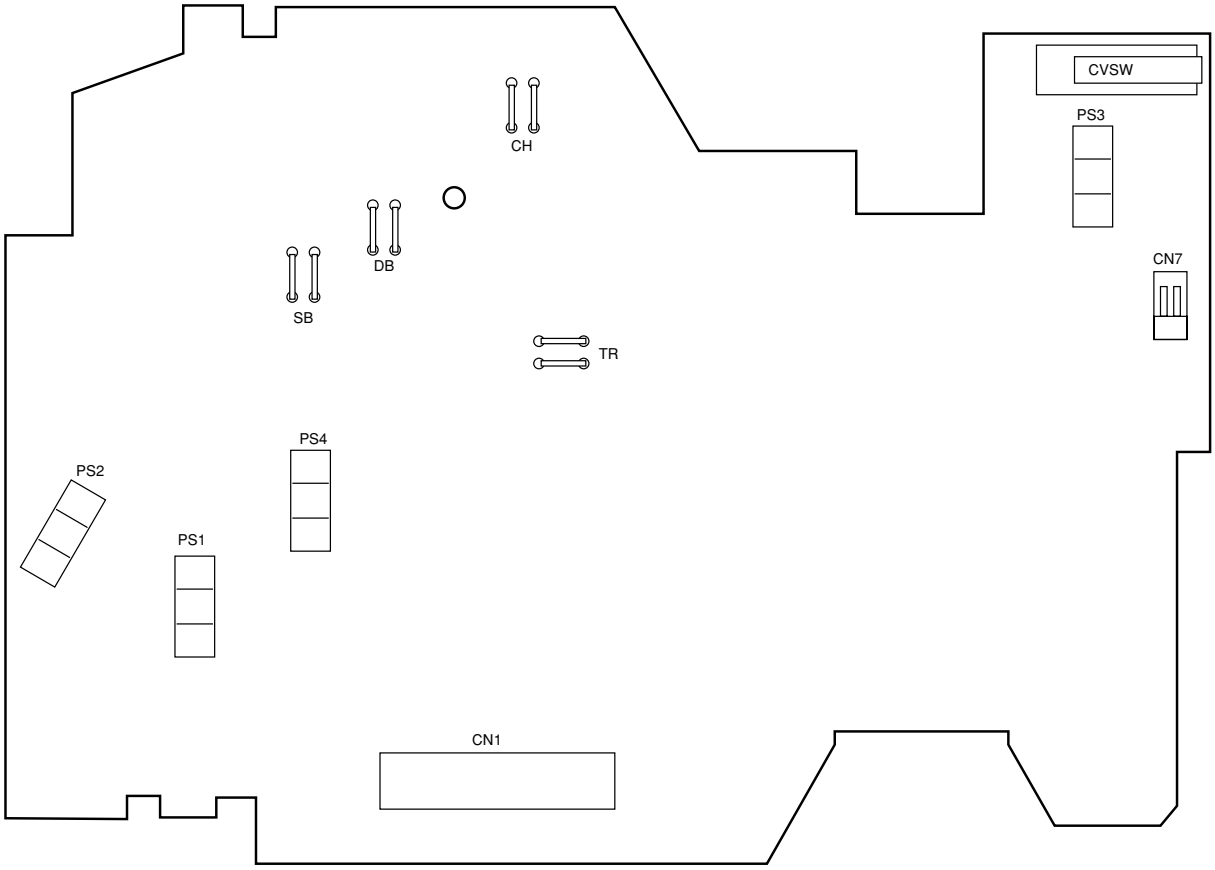
7.2 PCB Layout

7.2.1 Main Control Board (U8P PCB)

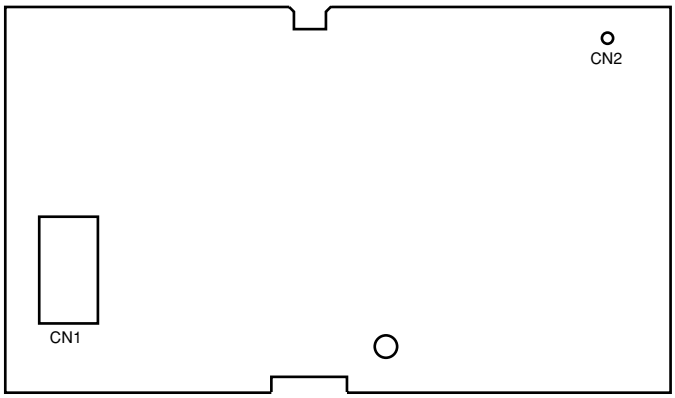


7.2.2 High-Voltage Power Supply Board

P2H



P6L



8. PARTS LIST

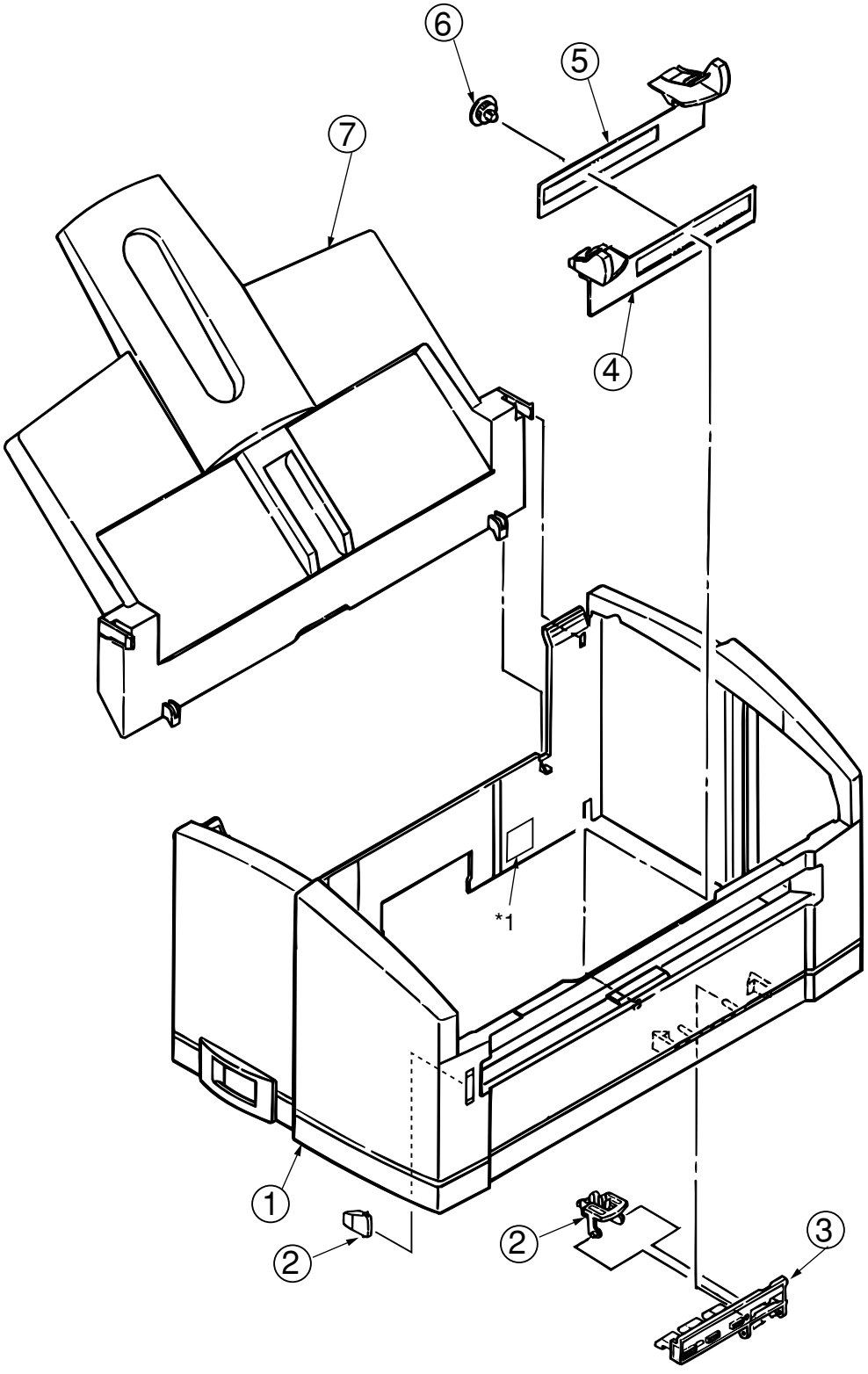


Figure 8-1 Cover Assy Upper

Table 8-1 Cover Assy Upper

No.	Part Name	Part No.	Q'ty	Remarks
1	Cover-Upper 1	40412501	1	
2	Lens 1	40413101	1	
3	Switch	40413001	1	
4	Guide Side (L)	2PP4128-1256P001	1	
5	Guide Slide (R)	2PP4128-1257P001	1	
6	Gear Spur A	4PP4128-1260P001	1	
7	Plate-Hopper	40412901	1	

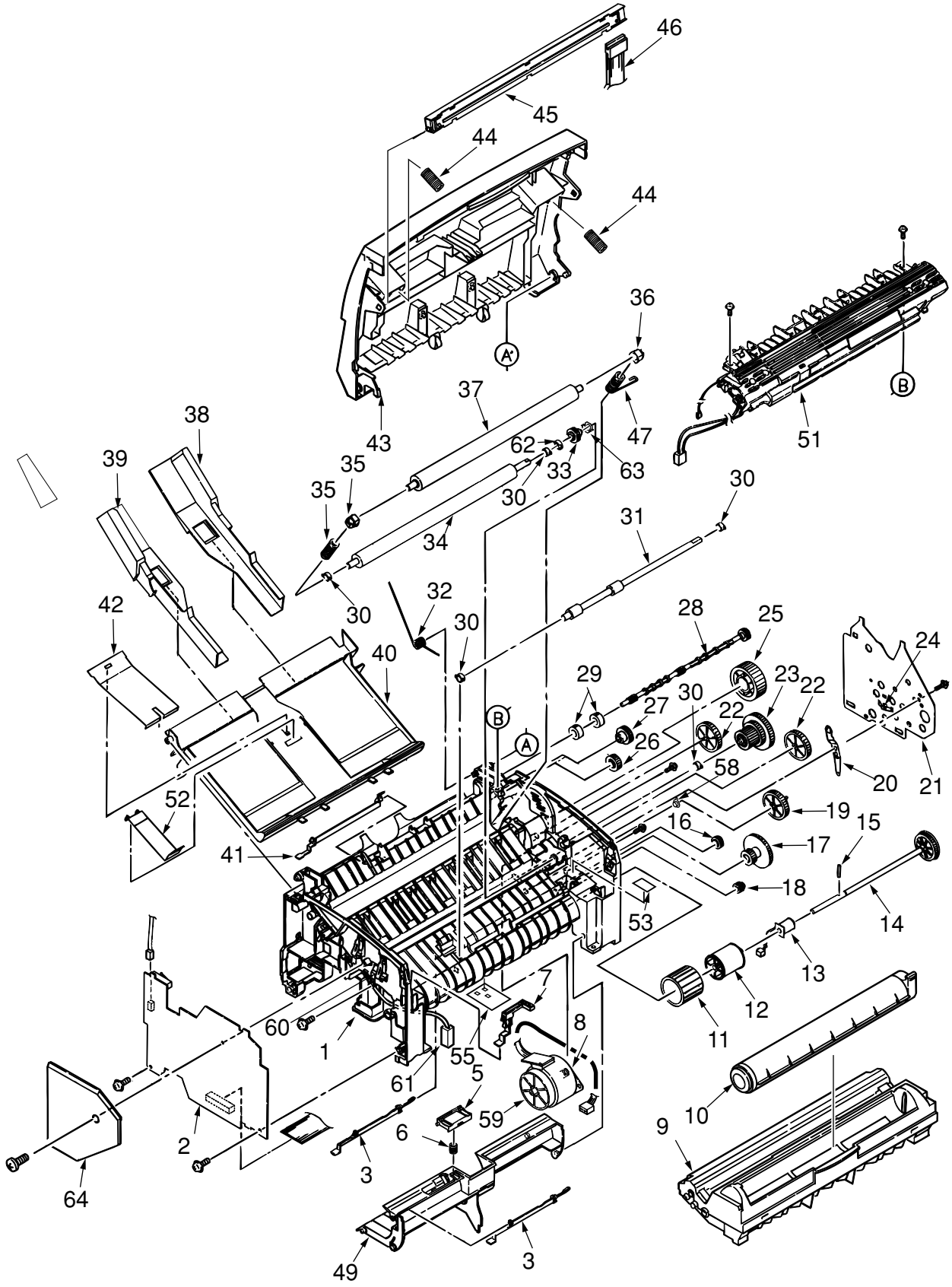


Figure 8-2 Base Frame Unit

Table 8-2 Base Frame Unit

No.	Part Name	Part No.	Q'ty	Remarks
1	Frame Unit Assy	40593201	1	
2	High-Voltage Power Supply Board P2H	40607401	1	
3	Paper Sensor E	3PP4083-1191P001	2	
4				
5	Separator Assy	40721301	1	
6	Compression Spring S	40781701	1	
7	Toner Sensor Assy	3PA4083-1193G001	1	
8	Pulse Motor	40496401	1	
9	Ep Unit (Type 6)	————————	1	Consumable
10	Toner Cartridge Unit (Type 6)	————————	1	Consumable
11	Hopping Roller	40779601	1	
12	Roller Holder (Hopping Roller)	3PP4083-1128P001	1	
13	Magnet H (Hopping Shaft)	3PB4083-1127P001	1	
14	Hopping Shaft Assy	3PA4083-1133G001	1	
15	Knock Pin	NK2-10-SUS	1	
16	Idle Gear R	4PP4083-1143P001	1	
17	Idle Gear 2R	3PP4083-1184P001	1	
18	Gear R	3PP4083-1142P001	1	
19	Idle Gear M	3PP4083-1181P001	1	
20	Earth Plate A	3PP4083-1189P001	1	
21	Side Plate M	3PP4083-1188P001	1	
22	Idle Gear P	3PP4083-1182P001	2	
23	Idle Gear 3R	40721001	1	
24	Tension Plate	4PP4083-1165P001	1	
25	Idle Gear Heat	3PP4083-1185P001	1	
26	Idle Gear E (A)	4PP4083-1186P001	1	
27	Idle Gear E (B)	3PP4083-1187P001	1	
28	Drive Shaft E (Eject)	3PP4083-1170P001	1	
29	Eject Roller	40074601	2	
30	Regist Bearing	3PP4083-1141P001	5	
31	Regist Roller	3PB4083-1140P001	1	
32	Tension Spring	40654001	1	
33	Gear T	40737801	1	
34	Transfer Roller	40713601	1	

No.	Part Name	Part No.	Q'ty	Remarks
35	Bias Spring (L) (Back Up Roller)	4PP4083-1136P001	1	
36	Bearing BU (Back Up Roller)	3PP4083-1161P001	2	
37	Pressure Roller B (Back Up Roller)	40594601	1	
38	Paper Guide (R)	40249501	1	
39	Paper Guide (L)	40249401	1	
40	Paper Holder	1PP4083-1231P001	1	
41	Paper Sensor Exit	3PP4083-1192P001	1	
42	Hopper Spring	4PP4083-1247P001	1	
43	Top Cover Assy	40592118	1	OKIPAGE 8p Plus
44	Head Spring	4PP4083-6168P001	2	
45	LED Head	40521101	1	
46	Flat Cable Assy	40591201	1	120V
	Flat Cable Assy	40591202	1	230V
47	Bias Spring (R) (Back Up Roller)	4PP4083-1137P001	1	
48				
49	Sheet Guide	40562401	1	
50				
51	Heat Assy	40592801	1	120V
	Heat Assy	40592802	1	230V
52	Stopper Spring	40034001	1	
53	Caution Label (TR)	4PB4091-6047P001	1	230V
54				
55	Film Guide	4PP4083-1139P001	1	
56				
57				
58	Bearing Gear	40634701	1	
59	Fan	40625401	1	
60	Contact CB	40638001	1	
61	CONN Cord HV	40638101	1	
62	Washer TR	40688601	1	
63	Guide Gear T	40710301	1	
64	Cover HV	40413401	1	

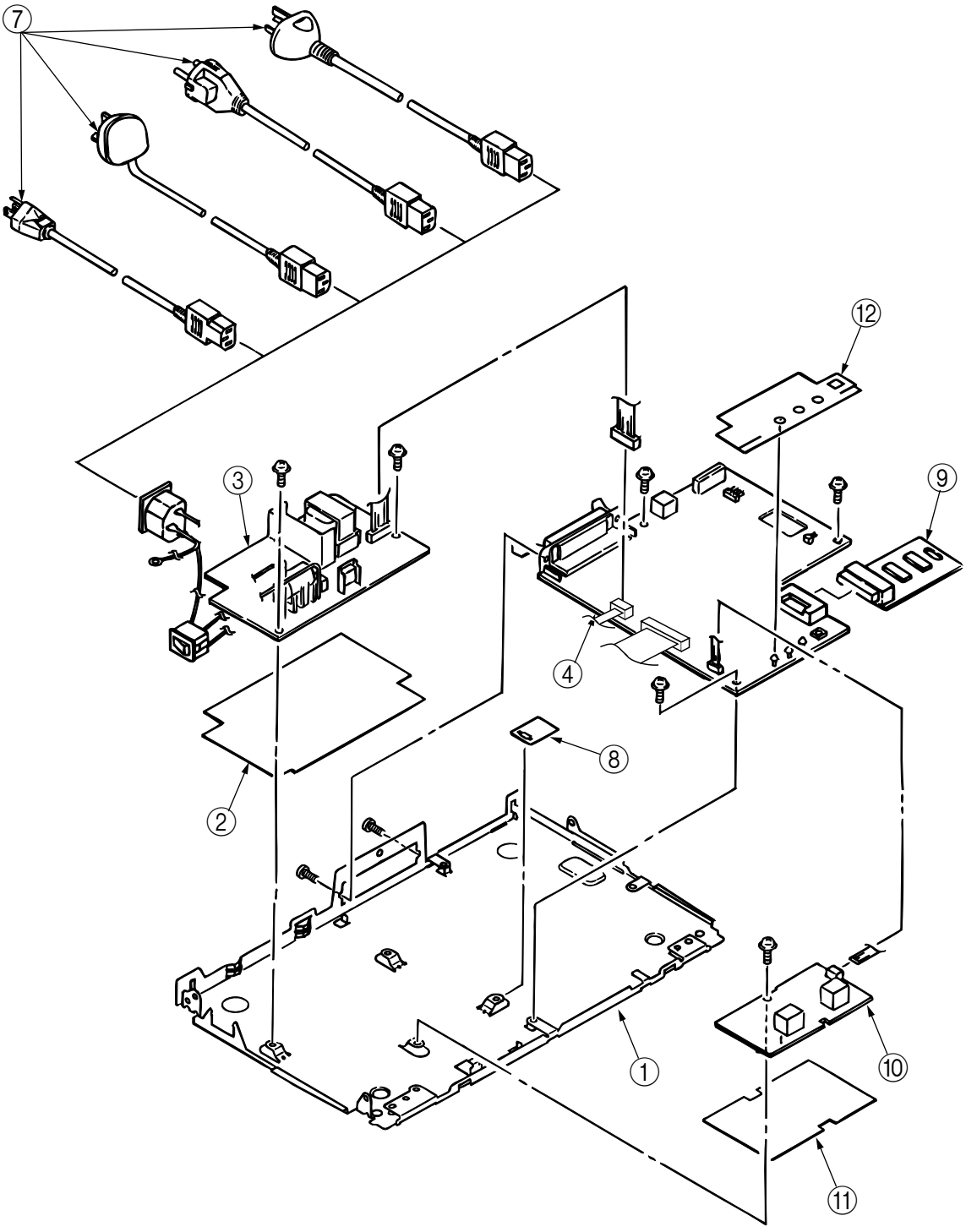


Figure 8-3-1 Base Plate Unit

Table 8-3 Base Plate Unit

No.	Part Name	Part No.	Q'ty	Remarks
1	Base Plate Assy	40592201	1	
2	Insulation Sheet A	40722501	1	
3	Power Supply Unit	40455701	1	120V
	Power Supply Unit	40455801	1	230V
4	Main Control Board, U8P	00097401	1	
5				
6			1	
7	AC Cord	3YS4011-1315P001	1	USA (TAIWAN)
	AC Cord	3YS4011-1266P001	1	Continental
	AC Cord	3YS4011-1270P001	1	U.K.
	AC Cord	40398702	1	Australia
8	Insulation Sheet B	40043001	1	
9	Option RAM Board, N8A	41116701	1	
10	High Voltage Power Supply Board P6L	40605601	1	
11	Insulation Sheet C	40593101	1	
12	Insulation Sheet	40727401	1	

Appendix A LOCAL PRINTING/ DEMO PAGE PRINTING

(1) The following operation enables the OKIPAGE 8p Plus to print data by itselt.

Demo page printing way by the Front panel switch is 2sec. Pushed and released in off line mode, except the data exists in buffer, receiving data, prosessing data, or printing data.

Appendix B PARALLEL INTERFACE

(1) Connector

- Printer side : 36-pin receptacle
  Type: 57RE-40360-730B-D29A (Daiichi Denshi) or equivalent

- Cable side : 36-pin plug
  Type: 57-30360 (Daiichi Denshi) or equivalent

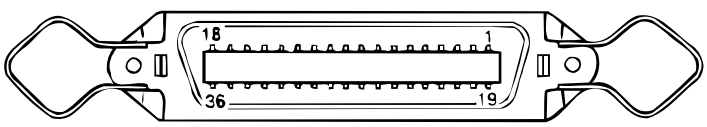
(2) Cable

- Cable length : 6 feet (1.8 m) max.
  (IEEE std 1284-1994 compliant is recommended for noise prevention.)

(3) Parallel I/F signals

Pin No.	Signal Name	Direction	Function (Compatible Mode)
1	DATA STROBE	→ PR	Parallel data sampling strobe
2	DATA BIT - 1	↔ PR	Printer parallel input/output data
3	DATA BIT - 2		
4	DATA BIT - 3		
5	DATA BIT - 4		
6	DATA BIT - 5		
7	DATA BIT - 6		
8	DATA BIT - 7		
9	DATA BIT - 8		
10	$\overline{\text{ACKNOWLEDGE}}$	← PR	Completion of input data reception
11	BUSY	← PR	Data reception not possible.
12	PAPER END	← PR	Paper end detection
13	SELECT	← PR	Select state (Online)
14	$\overline{\text{AUTOFD}}$	→ PR	Carriage return control
15	-		Not used
16	0V		Grounding for signals
17	CHASSIS GROUND		Frame ground
18	+5V	← PR	50 mA max.
19 ⋮ 30	0V		Grounding for signals
31	$\overline{\text{INPUT PRIME}}$	→ PR	Initialization signal
32	$\overline{\text{FAULT}}$	← PR	Paper end or alarm
33	0V		Grounding for signals
34	-		Not used
35	-		High level (3.3 kΩ)
36	$\overline{\text{SELIN}}$	→ PR	Data input enable or disable

• Connector pin arrangement



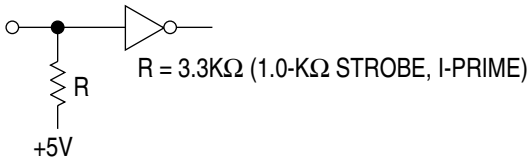
(4) Signal level

- LOW : 0 V to +0.8 V
- HIGH : +2.4 V to 5.0 V

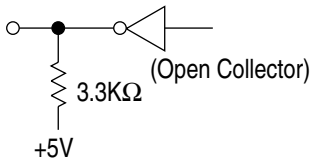
(5) Interface circuit

- 8p Plus

a) Receiving circuit

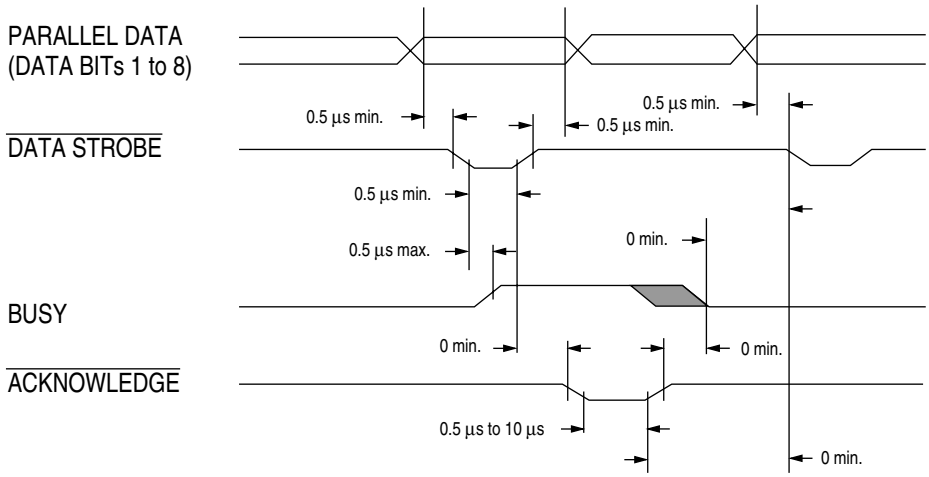


b) Sending circuit

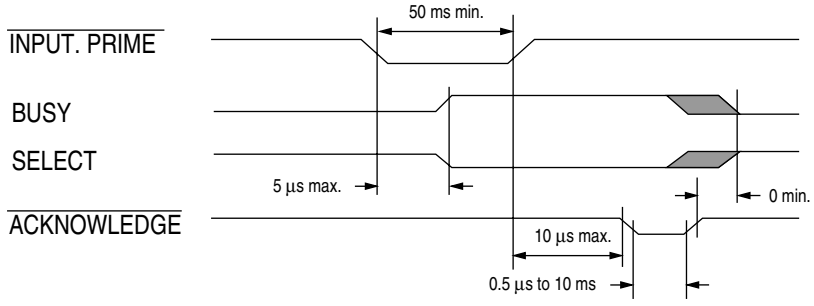


(6) Timing charts

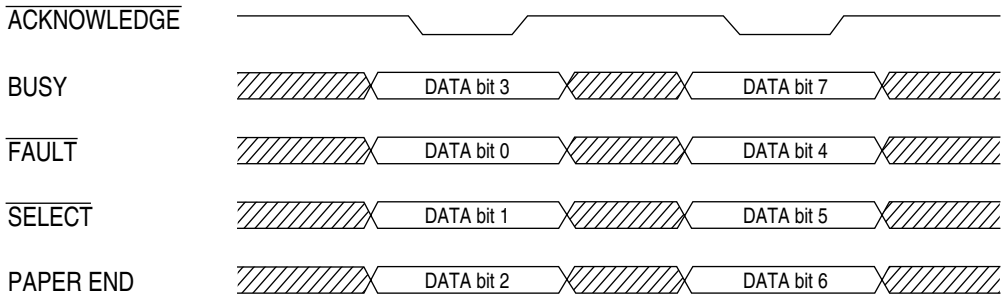
a) Data receiving timing (compatible mode)



b) INPUT PRIME timing (when the INPUT PRIME signal is enabled)



c) Data sending timing (nibble mode)



Appendix C USB Interface

Universal Serial Bus (USB)

1) Connector

   • Printer Side : “B” Receptacle (Upstream Input to the USB Device)
   • Cable Side : Serise “B” Plug

2) Cable

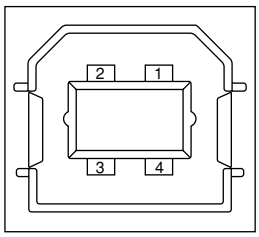
   • Cable Length : Max 5 m (A cable must be met USB Spec Rev 1.1 for normal operation)

   Note: Cable is not supplied.

3) Table of USB I / F signals

Contact Number	Signal Name	Typical Wiring Assignment
1	Vbus	Red
2	D -	White
3	D +	Green
4	GND	Black
Shell	Shield	Drain Wire

4) Connector pin arrangement



5) Signal Level
   • Input/Output Level

Parameter	Symbol	Conditions	Min.	Max.	Units
Input Levels :					
High (driven)	V_{IH}	Note 4, Section 7.1.4	2.0		V
High (floating)	V_{IHZ}	Note 4, Section 7.1.4	2.7	3.6	V
Low	V_{IL}	Note 4, Section 7.1.4		0.8	V
Differential Input Sensitivity	V_{CM}	I(D+)-(D-)I; Figure 7-9;Note 4,	0.2		V
Differential Common Mode Range	V_{CM}	Includes V_{DI} Range Figure 7-9;Note 4	0.8	2.5	V
Output Levels :					
Low	V_{CM}	Note 4, 5, Section 7.1.1	0.0	0.3	V
High (driven)	V_{CM}	Note 4, 6, Section 7.1.1	2.8	3.6	V
Output Signal Crossover Voltage	V_{CRS}	Measured as in Figure 7-6; Note 10	1.3	2.0	V

Bus State	Signaling Levels	
	Required	Acceptable
Differential "1"	(D+) - (D-) > 200mV and D+ > V_{IH} (min)	(D+) - (D-) > 200mV
Differential "0"	(D-) - (D+) > 200mV and D- > V_{IH} (min)	(D-) - (D+) > 200mV
Single-ended 0 (SE0)	D+ and D- < V_{IL} (max)	D+ and D- < V_{IH} (min)
Data J state: Low-speed Full-speed	 Differential "0" Differential "1"	
Data K state: Low-speed Full-speed	 Differential "1" Differential "0"	
Idle state: Low-speed Full-speed	 D- > V_{IHZ} (min) and D+ < V_{IL} (max) D+ > V_{IHZ} (min) and D- < V_{IL} (max)	 D- > V_{IHZ} (min) and D+ < V_{IH} (min) D+ > V_{IHZ} (min) and D- < V_{IH} (min)
Resume state	Data K state	
Start-of-Packet (SOP)	Data lines switch from Idle to K state	
End-of-Packet (EOP)	SE0 for ≥ 1 bit time[1] followed by a J state for 1 bit time	SE0 for ≥ 1 bit time[1] followed by a J state
Disconnect (at downstream port)	SE0 for ≥ 2.5μs	
Connect (at downstream port)	Idle for ≥ 2ms	Idle for ≥ 2.5μs
Reset	D+ and D- < V_{IL} (max) for ≥ 10ms	D+ and D- < V_{IL} (max) for ≥ 2.5μs

Notes:

1. The width of EOP is defined in bit times relative to the speed of transmission. (Specification EOP widths are given in Table 7-5 and Table 7-6.)
2. The width of EOP is defined in bit terms relative to the device type receiving the EOP. The bit time is approximate.
3. The width of the J state following the EOP is defined in bit times relative to the buffer edge rate. The J state from a low-speed buffer must be a low-speed bit time wide and from a full-speed buffer, a full-speed bit time wide.
4. The keep-alive is a low-speed EOP.

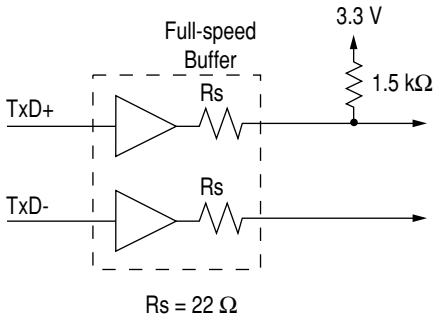
6) Mode & Class of Device

- Full - speed (12Mb/s) Driver
- Self - powered Device

7) Receive Buffer

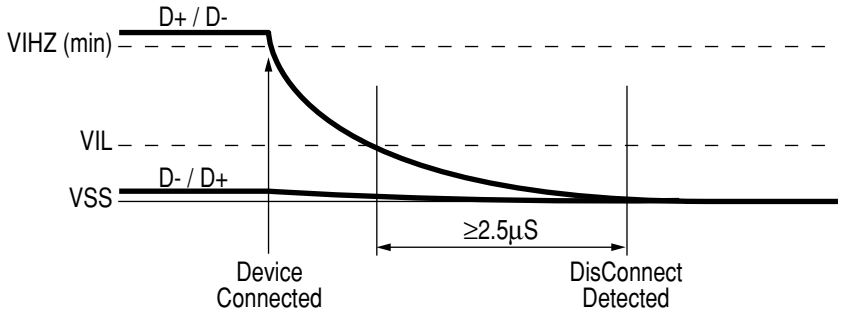
- 8 k Bytes at Resident 2 Mbytes RAM , 100 k Bytes at added optional 8 Mbytes RAM

8) Interface circuit

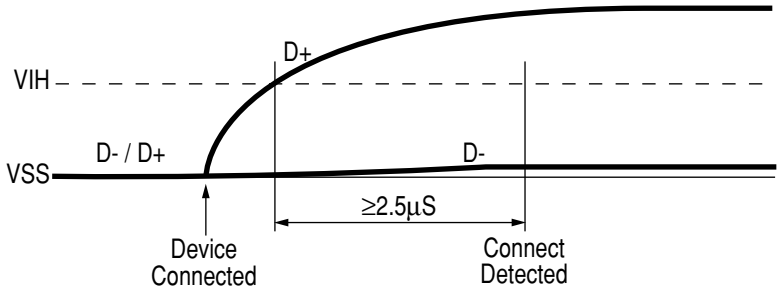


9) Timing Chart

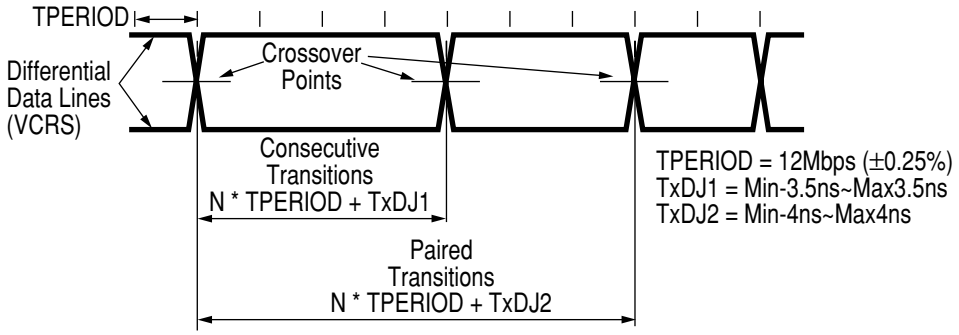
a) Disconnect Detectionv



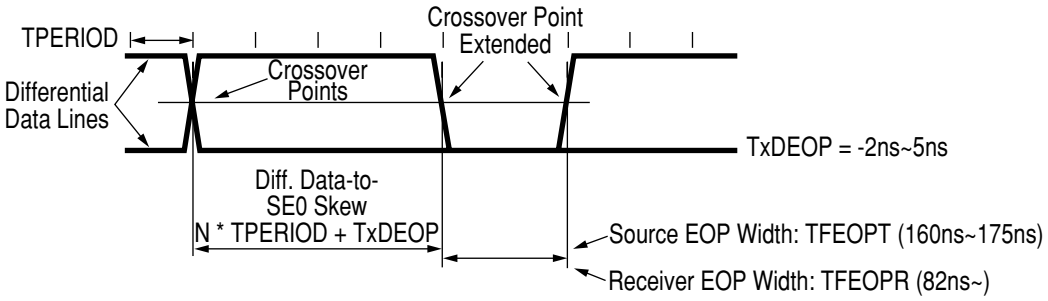
b) Full-speed Device Connect Detection

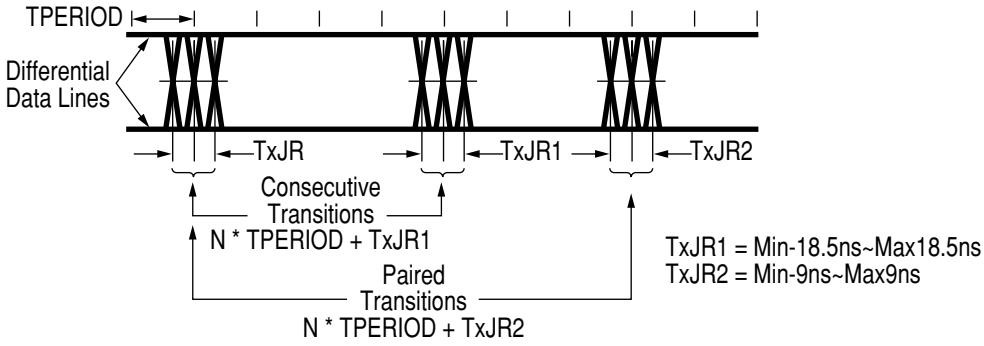


c) Differential Data Jitter



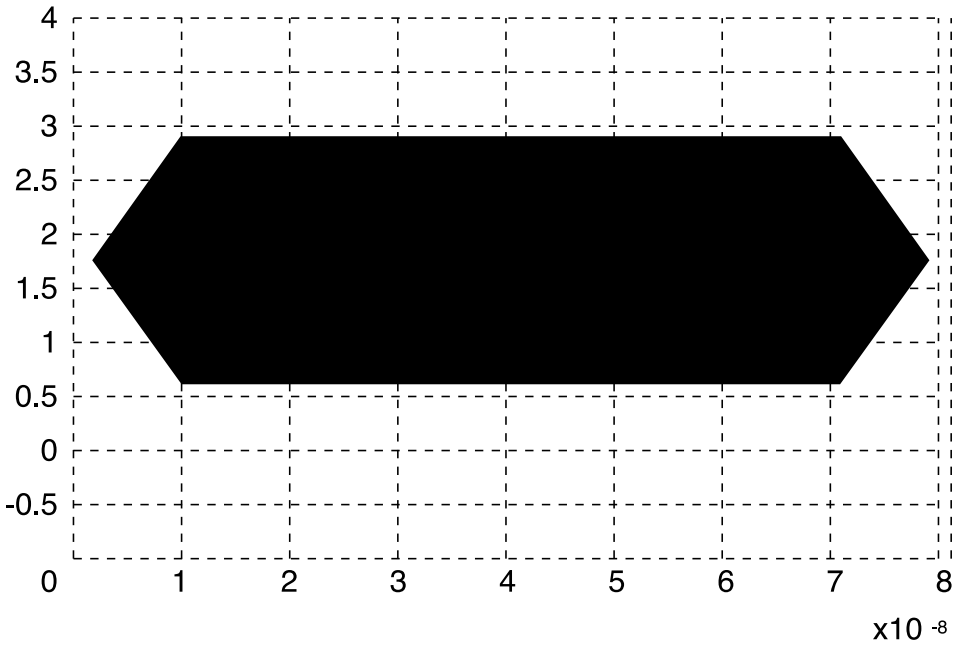
d) Differential-to-EOP Transition Skew and EOP Width





10) Signal Quality

a) Full speed, far end signaling eye



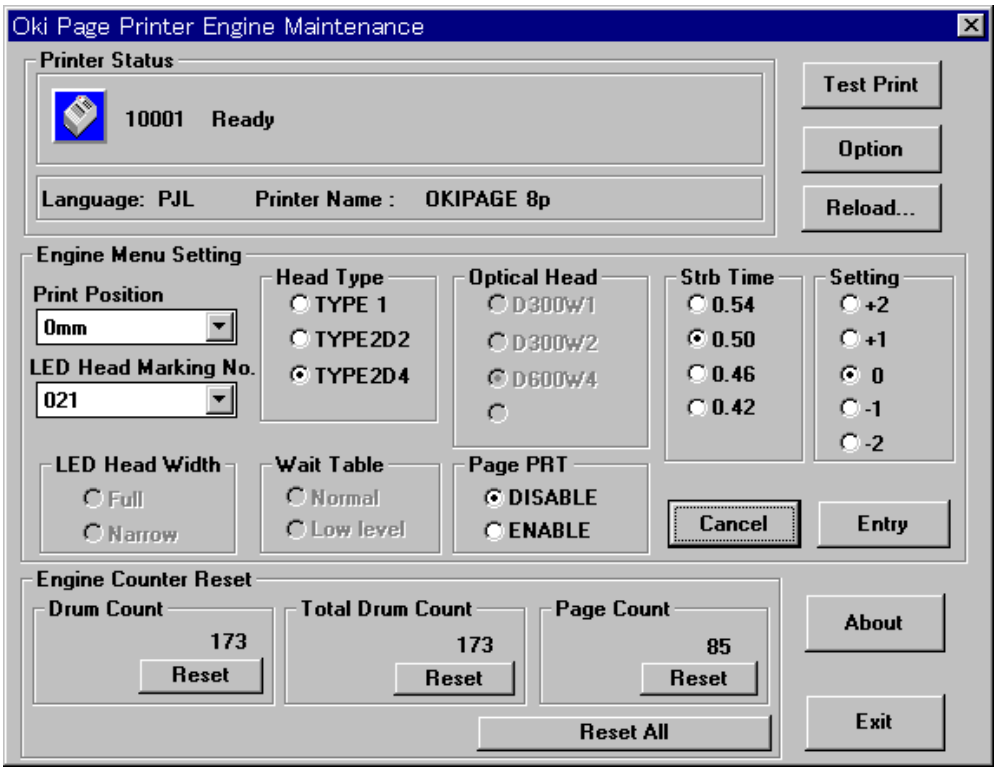
Appendix D Maintenance Utility GUI Manual (OKIPAGE 8p Plus)

Overview

This manual describes the details of GUI for the maintenance utility corresponding to OKIPAGE8p. However, As Disable section is not used in this printer, its explanation will be omitted.

1. Main Menu Dialog

The following figure is the dialog window which will be displayed at maintenance utility start-up.
You can use this window to set the engine menu, display or initialize each counter value and show thisprinter's version information.



1.1 Printer Status group

This area monitors the status of a printer and displays the status in real time. The numeric characters at the beginning of line represent a status code sent from printer side.
The followings are the details of icons.

(Blue) indicates the normal status of printer

(Yellow) indicates the abnormal status of printer (recoverable error).

(Red) indicates the abnormal status of printer (unrecoverable error).

* The inside of () represents icon color

1.2 Engine Menu Setting Group

This area shows the engine menu, the settings of which can be changed.
The details of each item are as follows.

<Print Position>

Shown message	Print Position
Setting item	Corrects the start position of print.
Setting range	-4.00mm~ +3.5mm
F/W default	0.00mm

<LED Head Drive Time>

Shown message	LED Head Marking No.
Setting item	Adjusts the light exposing time of LED Head.
Setting range	155-020 (No.1~ No.32)
F/W default	053-057 (600dpi-No.17)

<HEADTYPE>

Shown message	Head Type
Setting item	Sets the correction method in correction head at 600DPI.
Setting range	TYPE1/ TYPE2D4 : OKIPAGE6e/ 6ex TYPE1/ TYPE2D2/ TYPE2D4 : OKIPAGE 10i, OKIPAGE 8p Plus
F/W default	TYPE2D4

<Page Count Print>

Shown message Page PRT	
Setting item	Selects enable/disable of Page Count print in menu printing.
Setting range	DISABLE/ ENABLE
F/W default	DISABLE

<Setting>

Shown message Setting	
Setting item	Adjusts the current transmission value.
Setting range	-2*/ 1-/ 0/ +1 +2*
F/W default	0

* Selection “+2” in “Setting” is supported in OKIPAGE 4w, OKIPAGE 4m, OKIPAGE 8w, OKIPAGE 10i and OKIPAGE 8p, and “-2” in OKIPAGE 8w, OKIPAGE 10i and OKIPAGE 8p.

<Strb Time>

Shown message	Strb Time
Setting item	Sets the strobe time.
Setting range	0.54, 0.50, 056, 0.40
F/W default	0.50

1.3 Engine Counter Reset Group

Indicates the current value for each counter in this printer. And initiates each counter.
The followings are the details for each item.

<Drum Count>
Displays the number of rotations in build-in EP drum.

<Total Drum Count>
Displays the total number of rotations after shipment in the EP drum.

<Page Count>
Displays the total number of printed pages after shipment.

<Reset> button
A click to the button will show the image box, so that the user can make sure of the execution of each counter reset. An individual command should be transmitted for each counter reset to clear the indicated count of each counter.

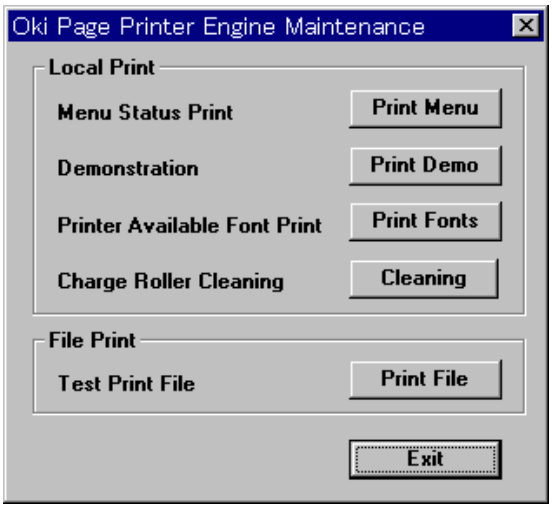
[Note] The page count will be disabled if the number of pages excesses 500, incapable of being reset afterwards.

<Reset All> button
A click to the button will show the image box, so that the user can reconfirm that the counter reset is under execution. All the commands should be transmitted for counter reset to clear the indicated counts.

2. Details for each button

2.1 Test Print button

This button sends a file for Menu printing, Demo printing and Font printing as well as for cleaning rollers of this printer or test printing and so on.
If pressing the Test Print button, the dialog shown in the following figure will appear.
The details of the figure are as follows.

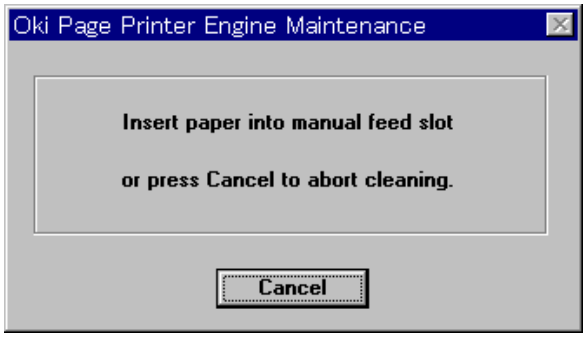


<Print Menu> button
Performs a menu printing for this printer

<Print Demo> button
Allows this printer to execute a Demo printing.

<Print Fonts> button
Performs a Font printing for fonts available for this printer

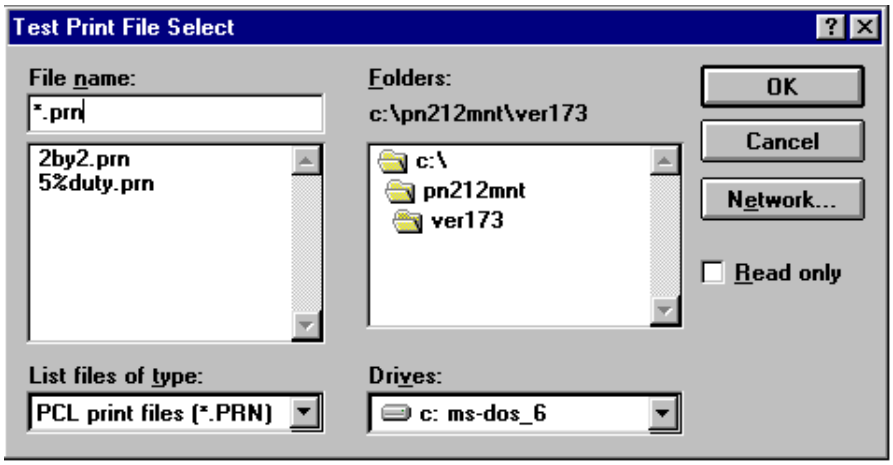
<Cleaning> button
This is the button for cleaning the charge roller.
It sends a header file and has the printer execute a cleaning print in manual feed mode.
If the printer becomes other than manual feed mode, the following messages will appear.



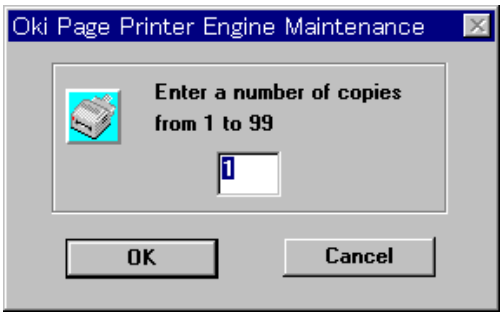
<Print File> button
This button transmits a test printing file. When pressing the Print File button, the select dialog box will open as shown in the following figure (Windows API), ready for the entrance of printing file from the operator. It will decide a print emulation from the extension of a selected file.

XXX.HBP	Switches the printer to Hiper Windows emulation and sends a file.
XXX.PRN	Switches the printer to PCL emulation and sends a file.
XXX.BIN	
XXX.*	Only sends a file without switching the emulation.

In this printer, **PCL Print File** should be default indication.



After the decision of file, the printer will show the following messages, making an inquiry about the number of copies to the operator to send files for the number, which will be designated.

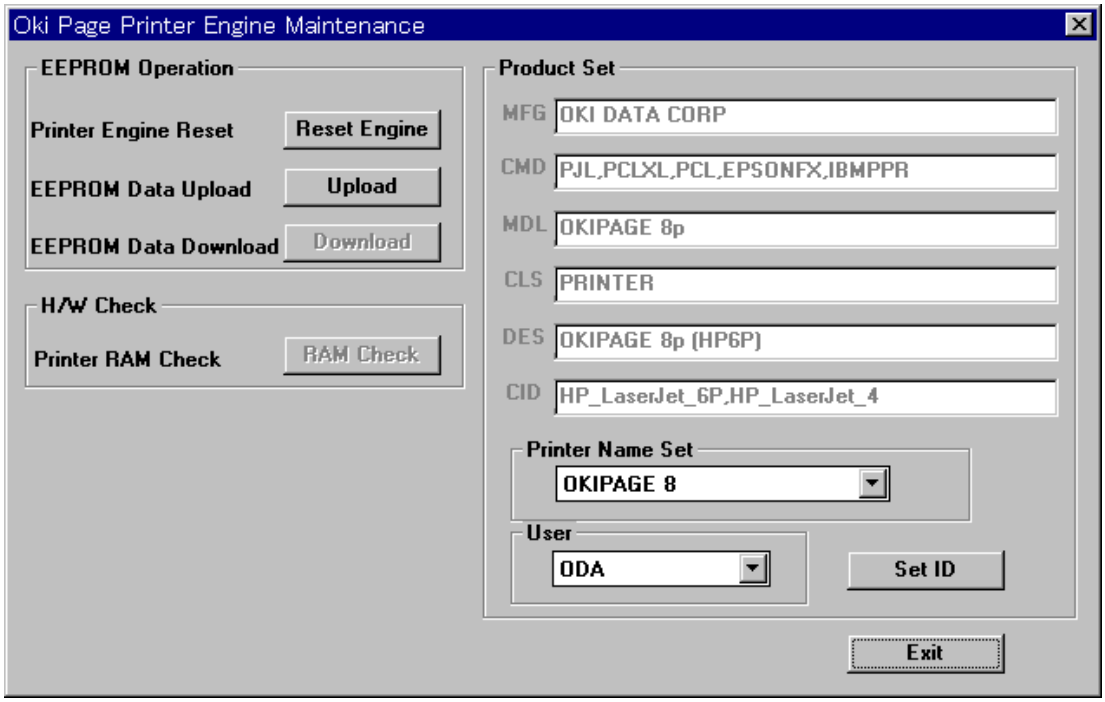


2.2 Option button

This button rewrites the EEPROM in this printer.
Option menu items will be displayed classified into the following 3 types in functional unit.

(1) EEPROM Operation displays and changes the engine menu settings.
(2) H/W Check performs a H/W check for the printer.
(3) Product Set changes the model name of printer, destination for shipment and names of available printers

If pressing the Option button, the Option Menu Dialog will appear as shown in the following figure, ready for the input from user.
The details of the figure are as follows.



<Reset Engine> button

All the items in Engine Menu will be reset except for LED Head settings to the factory default (currently, “Print Position” and “Setting”), clearing the counters to zero. This is the equivalent function to “Engine Reset” (Engine Maintenance Mode) for OL600e/610e. However, the items which have been selected disable by the initial file cannot be initialized even in other settings than LED Head. Nor for counters, can the counters be cleared if they have been set disabled.

<Upload> button

Settings in Engine Menu and numbers in counters will be saved to the memory for a currently-connected printer. After saving them, “EEPROM Download” will become valid.
However, when an I/F error has been detected, a message box informs the user of it without reading data from EEPROM.

<Download> button

The settings in Engine Menu and numbers in counters, which have been saved to the memory at “EEPROM Upload” selection, will be sent as commands to printer for EEPROM settings. After the completion of transmitting them, this button will become invalid.
However, when an I/F error has been detected, a message box informs the user of it without writing data to EEPROM.

2.3 Reload button

Reloads the menu setting or count values for this printer.

2.4 Cancel button

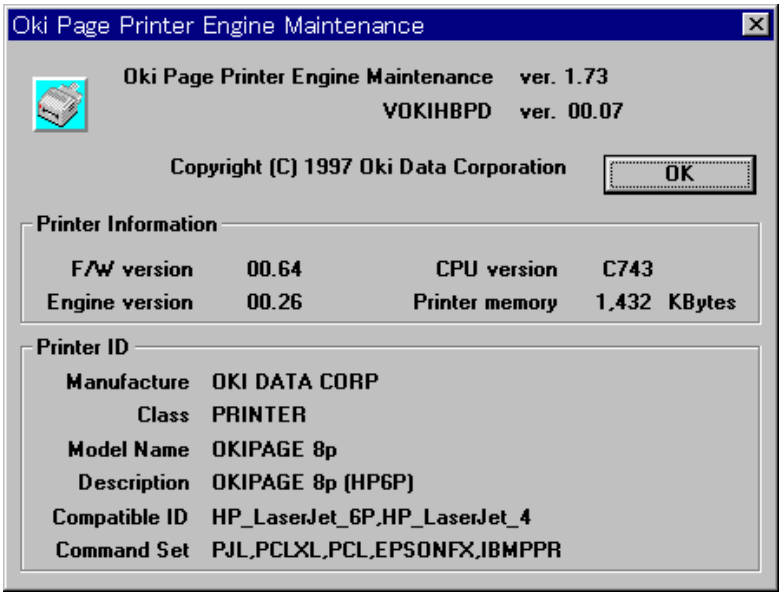
Clears the settings which have not been reflected (not been designated by “Enter”) among GUI setting values in engine menu group.
When a connected printer does not support some menu items, they are displayed in faint color (gray), incapable of being selected without setting values shown.
Whether the functions are supported or not shall be decided depending on whether response signals are returned or not to all the commands for loading menu settings of all items
And when the control is set disabled by the initial file, any selection cannot be made, but currently set values will be displayed.

2.5 Entry button

Reflects GUI set values in engine menu group to the printer.
When selecting “Enter” button, GUI displayed information (user settings) will be read to send all the menu item set commands, independent of whether it will be changed or unchanged.
And soon after sending the menu set commands, a menu setting read command will be sent. If the response to it differs from the designated menu setting, the menu box will appear each item to notify the EEPROM write error to user.

2.6 About button

Displays the version number of maintenance utility and virtual device driver and the information of firmware for this printer.



2.7 Exit button

Terminates the maintenance utility.